QUARTERLY REPORT

OF THE

PENNSYLVANIA BOARD OF AGRICULTURE

FOR MARCH, APRIL, AND MAY.

PENNSYLVANIA BOARD OF AGRICULTURE, 1879.

MEMBERS EX-OFFICIO.—His Excellency Governor H. M. Hoyt; Hon. A. K. Dunkle, Secretary of Internal Affairs; Prof. J. P. Wickersham, Superintendent Public Instruction; Hon. W. P. Schell, Auditor General; Dr. James Calder, President Pennsylvania State College.

APPOINTED BY THE GOVERNOR.—Dr. John P. Edge, Downingtown, term expires, 1880; John L. George, Monongahela City, term expires, 1881; Col. James Young, Middletown, term expires, 1882.

ELECTED BY COUNTY AGRICULTURAL SOCIETIES.

			Term expires.
Adams,	E. G. Fahnestock,	Gettysburg.	*1882
Beaver,	R. S. Sterling,	Seventy-Six,	1881
Berks,	W. G. Moore,	Womelsdorf,	1880
Blair,	T. Banks,	Hollidaysburg,	*1882
Bradford,	L. J. Culver,	Towanda,	1880
Bucks,	E. Reeder,	New Hope,	1881
Centre,	Prof. J. Hamilton,	State College,	*1882
Chester,	Thos. J. Edge,	Londongrove,	1881
Clinton,	Joel A. Herr,	Cedar Springs,	1881
Columbia,	Chandlee Eves,	Millville,	1882
Crawford,	M. C. Beebe,	Pleasantville,	1880
Cumberland,	C. H. Mullin,	Mt. Holly Springs,	*1882
Erie,	J. Miles,	Milesgrove,	1880
Franklin,	C. Gilbert,	Chambersburg,	1880
Indiana,	G. W. Hood,	Indiana,	1880
Juniata,	Prof. D. Wilson,	Port Royal,	*1882
Lancaster,	H. M. Engle,	Marietta,	1880
Lehigh,	J. P. Barnes,	Allentown,	1881
Luzerne,	John B. Smith,	Kingston,	*1882
Lycoming,	D. H. Foresman,	Williamsport,	*1882
Mercer,	A. Robinson,	Mercer,	1881
Montgomery,	W. A. Yeakle,	Flourtown,	1881
Northampton,	Asher D. Shrimer,	Bethlehem,	1882
Northumberland,	J. McFarland,	Watsontown,	*1882
Somerset,	C. C. Musselman,	Somerset,	1880
Schuylkill,	J. S. Keller,	Orwigsburg,	1881
Susquehanna,	J. C. Morris,	Friendsville,	1880
Tioga,	Prof. F. A. Allen,	Mansfield,	1882
Union,	J. W. Shriner,	Lewisburg,	1881
Wayne,	N. F. Underwood,	Lake Como,	1882
York,	W. S. Roland,	York,	1880

Re-elected January, 1879, for three years.

OFFICIAL LIST.

PRESIDENT—His Excellency Governor H. M. Hoyt.

VICE PRESIDENTS—Prof. J. P. Wickersham, John L. George, John C. Morris.

EXECUTIVE COMMITTEE—His Excellency Governor H. M. Hoyt; John P. Edge, Chester; Col. James Young, Dauphin; W. S. Roland, York; D. H. Foresman, Lycoming; H. M. Engle, Lancaster; W. G. Moore, Berks; M. C. Beebe, Crawford; D. Wilson, Juniata; J. P. Barnes, Lehigh; T. J. Edge, Chester.

ADVISORY COMMITTEE—Col. James Young, W. S. Roland, H. M. Engle.

SECRETARY—Thomas J. Edge.

BOTANIST—Thomas Meehan, Germantown.

POMOLOGIST—Josiah Hoopes, West Chester.

CHEMIST—Prof. F. A. Genth, University of Pennsylvania.

ENTOMOLOGIST—Prof. W. A. Buckhout, State College.

VETERINARY SURGEON—Dr. C. B. Michener, Carversville.

MICROSCOPIST—Dr. H. Leffmann, Philadelphia.

MINERALOGIST—Dr. F. A. Genth, University of Pennsylvania.

GEOLOGIST—Prof. J. P. Lesley, State Geologist.

Additions to List of Official Reporters.

(See last quarterly report.)

Berks.—Wm. N. Potinger, Bernville; Adam Munnich, N. Heidelberg; Levi K. Balthaser, Bernville.

Clearfield.—Miles Wall, Curwensville.

Fayette.—Julius Dun, Smithfield; Franklin Bute, East Liberty.

Forest.—John Thompson, Stewart's Run; A. B. Kelly, Tionesta; W. A. Dusenberry, Newton Mills; W. Cook, Cooksburg; W. H. King, East Hickory.

Luzerne.—Sylvester Dilley, Wilkes-Barre; E. W. Sturdevant, Wilkes-Barre.

Mifflin.—John K. Hartzler, McVeytown.

Montgomery.—Seth Wilson, Willow Grove; David Stephens, Abington.

Perry.—B. F. Hall, Sherman's Dale.

Wayne.—Lewis Armstrong, Factoryville; J. G. Spaulding, Forkston; G. W. Fassett, Scott Centre.

Wyoming.—G. Roberts, Falls; A. Fassett, Scottsville.

TRANSACTIONS OF THE BOARD.

JUNE MEETING.

Condensed from the Minutes.

At a meeting of the State Board of Agriculture, held in the hall of the Permanent Exhibition Company in Philadelphia, commencing June 5, 1879.

Board called to order at half past ten, A. M., by Hon. M. C. Beebe, who nominated D. H. Foresman, of Lycoming, as President *pro tem.*

Minutes of previous meeting read by the Secretary and approved.

The Secretary reported that, in obedience to the resolution authorizing an investigation into the cause of abortion among cows, the President had named Dr. Isaiah Michener, of Bucks, Dr. John P. Edge, of Chester, Samuel W. Comly, of Montgomery, and Watson P. Magill, of Bucks, to c öperate with C. B. Michener, veterinary surgeon of the Board, in the examination.

That in accordance with instructions, he had used all fair means to secure the passage of the fertilizer law prepared and presented by the committee of the Board, and that its passage was probable, if not two late in the session. (The law passed finally during the last day of the session, and only needs the signature of the Governor to become effective.)

That a draft of an act having for its object the repeal of the fence laws of 1700 and 1784, had been presented by Hon. C. H. Seymour, in the Senate, but was not acted on, on account of the large amount of other business claiming attention.

That Messrs. Miles, of Erie, and Underwood, of Wayne, had, in accordance with the resolution of the annual meeting, furnished him with proper proof that their respective county agricultural societies were justly entitled to an annual bounty from the county, and thus fully confirmed their right to a membership in the Board.

That the Northampton county agricultural society had officially informed of the election of Asher D. Shrimer, of Bethlehem, to represent them in the Board, and that, for a like purpose the Clinton County Agricultural Society had elected Joel A. Herr.

That he had received official notice of the appointment of the following delegates from county societies and other agricultural organizations, viz:

Bucks County Agricultural and Horticultural Society, Col. J. L. Stichter, Samuel B. Knabb, Hon. George D. Stitzel, and Jacob G. Zerr, president of the society; Oxford (Chester county) Agricultural Society, Thomas Wood; Bucks County Agricultural Society, Thomas C. Knowles and Robert C. Eastburn; Chester County Agricultural Society, William W. Parker; Eastern Pennsylvania Experimental Farm Club, Job H. Jackson and Sam-

uel R. Downing; Buckingham Valley Grange, (No. 453, Bucks county,) Joseph Landis, S. Landis, and Horace Michener.

On motion of Dr. Roland, these delegates were invited to participate in the discussions of the Board; amended by Mr. Yeakle so as to include all present at the meeting, and adopted.

Willis P. Hazard informed the meeting that Samuel J. Levick, secretary of the Pennsylvania Society for the Prevention of Cruelty to Animals, wished to address the Board, at some time during its sessions, on the subject of the improvement of the condition of verterinary science in the State. On motion of Dr. Edge, it was agreed that twenty minutes of the afternoon session should be devoted to this purpose.

Prof. William Barbeck, Philadelphia, then proceeded to read an essay on

MICROSCOPIC FUNGI IN CEREALS,

illustrating his subject by a large chart. He stated that there is, perhaps, no field of microscopic investigation in which the more secret researches have given so many important practical results in tracing the origin of a good many of those parasites so destructive to animal as well as vegetable life. We know that the real nature and development of a whole army of more or less injurious parasites, which feed and thrive at the expense of our health, were unknown to former naturalists; that not many years ago we were wholly ignorant as to the cause of a great many apparently epidemic diseases, which threaten to defeat the efforts and labors of agricultural industry. On the other hand, we know that, in a rapid succession, and within the space of only about twenty years, one sneaking and malicious little destructor after another has been traced until its secret hiding place has been brought into broad daylight, and within the reach of our efficacious remedies. In face of these undeniable facts, we have warmly to acknowledge the achievements of such of our contemporary naturalists who, by their toilsome but indefatigable investigations, have, at least partly, lifted, and are still at work to lift, more and more, the mysterious veil which (but for the aid of our wonderfully improved microscopes) would even now bid defiance to all efforts of penetrating it.

The professor confined himself to a limited number of the results of the more recent investigations, especially the parasites which infect the various species of corn, and are more or less destructive either to the growth of the whole plants or to the development of the fruit. He first called attention to the ears of rye, showing that the ears themselves, with their bracts, or glumes, are apparently developed in a normal way, but that some of the grains have attained an abnormal size, of a somewhat blackish color. This is what is generally called *Ergot*, botanically, *Caviceps purpurea*, a fungus which is to be found exclusively on rye and wheat, and, because of its poisonous effect on animal organism, is dreaded particularly in those parts of northern Europe where rye bread forms the principal ingredient of daily food. This fungus shows three distinct stages of development, two of

which were well known to former botanists, but were described as separate species belonging to entirely different genera. It is to Tulasne that we owe the discovery of their immediate connection and succession. The process of development is as follows: In examining a rye field towards June, when the several parts have been differentiated, we may find in some ears a mucous, honey-like substance flowing from out the glumes of the ear. In examining this honey-dew, as it is called by farmers, under the microscope, we find it swarming with millions of minute oval spores, or conideae, which, upon further examination, we find to issue from a tender but complicated fungoid tissue, mycelium, which penetrates the lower part of the ovary, transforming it into a soft, whitish body of an oblong shape. In this form our fungus was described and recorded by Leveille as spacelia sigetum. In the specimen shown, the upper part, representing the ovary with its two stigmas, was dissolved by the sphacelia, while in the inferior part the hyphae of the mycelium are continually growing downward, and at length forming the oblong body of the Ergot.

In the course of a few weeks, the gelatinous membranes of the hypdae of this mycelium harden, and assume a brownish color, and thus the originally soft tissue is transformed into a body of corky or horny consistence and shriveled surface. In about a month, the Caviceps purpurea was developed. We then behold a number of purplish earpophoris, each ending in a yellowish head, growing from out the solerotium. Each of these heads shows, on a longitudinal section, a row of regularly shaped and arranged peridiae. These are filled with a great number of asci, which contain the very minute and thread-like spores. Where these spores are seen with healthy young blossoms of rye, they will, in a short time, produce the sphacelium. The same results are sure to be obtained by means of the conidia of the honey-dew, which, in a comparatively short time, will infect other perfectly healty ears, and will even cary the disease over to several species of grass. It is generally known that the Ergot, when brought in larger portions into human organisms, operates as a narcotic poison, as numerous cases have been observed.

In 1771, this disease was so acute that in Westphalia and Hanover more than ninety per cent. proved fatal. A number of diseases befalling our domestic animals are most probably to be ascribed to the honey dew which horses and cows have eaten with infected grasses. Of course, the farmer ought carefully to remove such infected plants growing in the neighborhood of his rye field. He ought to pick out the ergot grain as much as possible before the corn is mown, and as they are only found during the short period of fruitification, he has to apply such methods of cultivating his ground, particularly the drilling, as tend to obtain a simultaneous development of the fruits, thus reducing the dangerous period to a possibly short time.

Two specimens of

Ustilagineae, or Smut,

were then shown. These are a favorite fungi, whose fine-threaded, wide-spreading mycelium grows through large portions of the infected plants. They grow, however, only in certain parts of the plant, and at certain periods these vary, according to the species of Ustilago, each of which has its peculiar part. Whole ears of various species of corn are destroyed by oat smut. Numerous experience has proved that these spores maintain their power of germinating for several years. *Ustilago Maydis*, or maize smut, draws its mycelium upward from the first joint through the whole plant, and destroys afterwards the cobs. However destructive all these may be, it is within the power of the farmer, if not to prevent, at least to limit their excessive increase. The spores have been found adhering in large numbers to the grains which are harvested, and which, of course, when sown in the spring, will carry the disease over to the next crop. A solution of copper vitriol, which is not hurtful to the seed, is sure to kill the dangerous spores, and so we have an efficacious and, at the same time, cheap preventive remedy at hand.

Uredineae or rust and brand is found to be very destructive to gramanial and other cultivated plants. Specimens produced were found to have on them a number of powdery spots and lines of a yellowish rusty or dark brown color. These pustules are produced by parasitic fungi which have their seat under the ependerum of the infected plants, and after being developed burst through the epedimics. In early summer examining Barberry or Bucksthorn growing in the neighborhood of our corn field, we may be pretty sure to find the under surface of such leaves covered all over with little cup or jar-like bodies of a bright yellowish or rusty color. These little bodies are what have long been known under the name of cluster cups.

The speaker then directed the attention of the Board to

Mildew,

which is injurious to the growth of the infected corn. The real nature of this fungus has likewise but recently been described, and it requires a good microscope to discover the minute organs of fructification. Soon after the formation of mildew has commenced, we see some of the mycelium threads growing upwards in a vertical direction, these threads become segmented into several cells, each of which is separated and transformed into a conidium, and by means of these conidia the mycelium is propagated during summer incredibly rapid under favorable conditions.

The essay concludes as follows: "In throwing a look back on my communication I shall be happy if I have succeeded in showing that the microscopical researches of last year have led us a good step forward in the cognition of these little pests which prove so destructive to agricultural industry. It is to be hoped that the veil may be rolled up more

through the earnest and unremitting investigations of so many scientific observers who are busily at work here as well as abroad."

The essay and address of Professor Barbeck was received with marked attention, and was discussed by Messrs. Meehan, Smith, and others.

On motion of Mr. Hazard, Samuel Chamberlain was invited to read his essay on silk culture.

In this essay Mr. Chamberlain endeavored to exhibit the advantageous nature of silk culture financially, intellectually, and commercially. Silk is to the fabrics what gold is to the metals and the diamond to other precious stones. It is not to the climate nor to the soil that the failure to introduce the cultivation of raw silk must be attributed, but to the want of instruction in the art of rearing the worms and of reeling the silk from the cocoons; to the absence of patient care and diligent attention; to seemingly vexatious minutia that the Chinese give, and that Count Dandola's regulations enforce, and to the want of the educated eye and supple fingers, which alone can make the otherwise slow process of reeling to be profitable. To procure these a school of instruction is a prime necessity. Philadelphia is an advantageous locality, on account of mulberry trees in great numbers, the natural food of the silk worm, and upon which it thrives.

The reading of the essay was received with applause, and at its close Mr. Chamberlain stated that as a branch of the educational feature of the permanent exhibition, he had established in the building a school in which *practical* silk culture, from the hatching and feeding of the worms to the reeling of the silk, could be learned, and invited the members of the Board to inspect the industry in is various stages. President Paxson, of the Permanent Exhibition Company, also invited the Board to inspect the exhibits in the main building at any time most convenient. The Secretary of the Board also announced that a section of Cooley's creamery was in practical operation in the agricultural department of the exhibition.

On motion of Mr. Beebe, the Board accepted the invitations of Messrs. Chamberlain and Paxson, and on motion of Mr. Eves, it was agreed that the morning sessions should terminate at one o'clock, with a recess of one hour for dinner and inspection of building and exhibits.

On motion, adjourned to meet at two o'clock, P. M.

At an adjourned session of the Board, held Thursday, March 5, 1879,

Board called to order at half past two o'clock, P. M., by President *pro tem.* Foresman in the chair.

On motion of Mr. Moore, the certificates of Mr. Shimer, member elect from Northampton, and Mr. Herr, member elect from Clinton, were referred to a committee, as members of which the chair named Messrs. Moore, Young, and Beebe.

C. B. Michener, veterinary surgeon of the Board, then read an essay on pizootic pleuro-pneumonia, in which he distinguished between simple and

sporadic pneumonia, and pointed out the fact that the latter was attributable in cattle to the same causes that produced in man inflammation of the mucous membrane, namely, bad ventilation, excessive cold or heat, exposure to wet weather, etc. The contagious disease was entirely different, and was caused differently, resulting altogether from poison of the system, and communicated from one animal to another, and that, too, with inevitable certainty. It was a malignent fever, with local manifestations on the lungs and thorax. The lungs of cattle containing more connecting tissues than those of horses, swelled, and became enormously heavy when attacked by the disease. Of the cause and mode of propagation of pleuro-pneumonia the essayist remarked that the former was invariably a specific virus, and animals always contracted the disease from others in whom it already existed. The same virus always produces the same symptoms. No curative treatment as yet discovered has radically removed the disease if it has reached the lungs, and the lungs are never fully restored, though the animal may appear to be better, and may feed and travel about as usual. As preventives, Dr. Michener suggested disinfectants and inoculations. Of the latter, veterinary surgeons have entertained an opinion that has vibrated between the extremes of approval and condemnation. Some appear to have tried it with great success; in other cases it has failed.

The president *pro tem.* then read the report of the committee of the State Legislature appointed to investigate into the condition of the Pennsylvania State College, and its president, Dr. Calder, asked the Board to permit him to make a few remarks in defense of the institution, which was granted.

The committee having in charge the credentials of Messrs. Shimer and Herr, reported that both were entitled to membership in the Board. After discussion, on motion of Mr. Keller, seconded by Mr. Musselman, the report was accepted.

An essay by J. S. Keller, of Schuylkill, on "Recklessness with Fertilizing Substances" was then read, in which he deplored the practice of allowing the products of the fowl-house and barn-yard to run to waste, and urged their being piled together, covered with light earth, and made into a compost. Vegetable matter, the paper stated, was also thrown away, often upon the high road, instead of being heaped up under coal ashes, or other material, and preserved to turn into mould and enrich the soil. The essay ended by commenting severely on the carelessness which allowed manure to lie upon the surface of the earth till it was dried into useless dust, instead of being plowed underground immediately. In conclusion Mr. Keller urged most earnestly the great value and importance of preserving all the home products that could be made to fertilize a farm.

Thomas Meehan, botanist of the Board, then addressed the meeting upon the subject of "The Sexes of Plants," and was listened to with great attention, and brought forth considerable discussion.

On motion, adjourned to meet at half past ten, A. M.

At an adjourned session of the Board held Friday, June 6, 1877,

Board called to order at half past ten, A. M., by vice president John C. Morris, in the chair.

By request, Horace L. Smith read an essay prepared by Mr. F. L. Stewart, of Westmoreland county, on the manufacture of sugar from corn.

Mr. Stewart prefaced his essay with the promise of exhibiting the process of extracting sugar from the juice of the green stems of Indian corn in the hall of the permanent exhibition, during the continuance of the approaching State fair.

Briefly described, this process deals with saccharine juices containing, in their normal condition, both cane and fruit sugars—the former largely preponderating. I recognize three distinct classes of saccharine juices, viz:

1. Those, like the tropical sugar-cane and the beet, which, when their juices are mature, contain, in association with other substances, true crystallizable sugar only.

2. Those, like most fruits, such as the apple and the grape, which, whatever their composition otherwise, contains no true sugar, but only glucose, cevulose, &c.

3. Those, like maize and sorghum, which have not heretofore been generally recognized as distinct, containing, in their best condition, both cane sugar and uncrystalizable sugar, but which, by reason of the defective modes of treatment heretofore resorted to, have proved practically uncrystalizable.

These difficulties are now entirely removed. It is now clearly shown that the juices of maize and of sorghum grown in the United States are richer in sugar of the true cane type than any other plant that can be grown in temperate latitudes; that nine tenths of their saccharine matter is such sugar, and that the impediments to crystallization are such as are peculiar to those plants. Accordingly, I find that neither the process adopted in the extraction of sugar from the southern cane, nor the much more elaborate and costly methods of the beet sugar manufactures in Europe, are appropriate to the successful extraction of sugar from those plants, which, in this case, involves entirely new conditions, and requires radical changes in the modes of chemical treatment.

Entirely aside from its advantages as an antiseptic and a decolorizer, I have discovered a peculiar property in the dioxide of sulphur when employed upon these juices, under certain conditions, which were heretofore unknown and unused, now perfectly solves the problem of the separation and crystallization of the sugar. This is done expeditiously, cheaply, and certainly.

Practically, then, the value of these new sugar-producing plants may concisely be stated as follows:

1. The stems of Indian corn in any of its many varieties, if taken at the proper stage of development, as well as those of the different varieties of

sorghum, contain in great abundance a saccharine juice scarcely excelled in richness by the sugar-cane of Louisiana. The sugar produced by this process is true, crystalized cane sugar. Maize sugar, it need hardly be said, is not the so-called and comparatively worthless "corn sugar," sometimes made from the starch of the refined grain by a well-known chemical transformation; but it is a natural product of the juice of the immature plant.

One hundred pounds of the stems of these plants, at the proper period of a growth, (when the grain is "in the milk," in the case of corn, and from shortly after the flowering period to perfect ripeness in the case of sorghum,) contain about eighty-seven and one half parts of juice, and twelve and a half parts of woody fiber and insoluble substances. Twelve to fifteen per cent. of the juice is crystallizable cane sugar, nearly all of which can be extracted.

2. The impurities which hinder crystallization, as already said, are of a peculiar kind, and resist every other known mode of treatment, except that used in this process. The sugar so made is of as good a quality as that made from the southern cane or the beet, and is produced far more easily and cheaply.

3. Like the sugar-cane, and unlike the beet, these plants possess a saccharine quality of the juice which is little affected by the presence of nitrogeneous substances in the soil. Hence they are adapted to a wide range of soils, and notably those of the western prairies, where the beet is a failure.

4. All varieties of Indian corn and sorghum yield this saccharine juice, and natural hybridization does not greatly affect its quality; and hence but little care, comparatively, is needed to prevent intermixture of varieties, although by careful selection richer varieties than those now existing will, no doubt, be produced.

5. The immature corn plant only being used for this purpose, the sugar may be produced within a little over three months from the time of planting the seed. Hence, all danger of frost may be avoided, even in our extreme Northern States, and generally the ground can be used for producing two crops in a season—a sugar crop, followed by turnips, etc. In these respects, as in many others, these plants have a great advantage over both the southern cane and the beet. Some of the most prolific varieties of sorghum require but a little longer period to mature their juice than Indian corn.

6. The yield of sugar per acre from a single crop will range from two thouannd to three thousand pounds, or equal to the average from the sugar-cane and the beet, at their best, and at one half the cost. The total cost of productioni, including the cultivation of the ground, the harvesting of the crop, manufacture, interest on machinery employed, chemicals, royalty, &c., should not exceed two and one half to three cents per pound. The yield of sugar from each gallon of dense syrup produced will vary from nine to eleven

pounds, averaging ten pounds. The yield per acre of ground planted may, therefore, be roughly estimated by the known capacity of the land, in any given locality, to produce crude sorghum syrup in former years—two hundred gallons of dense sorghum syrup, crystallizing two thousand (or a ton) of sugar per acre, is an easily attainable yield on good soil, with good cultivation and proper crushing-mills for expressing the juice. Of course, when a crop of corn is planted for its sugar alone, it must be grown much more densely on the ground than when the ripened grain is the object. For example, common field corn, sown in drills, so that the corn stems will stand four to six inches apart, the rows three feet and a half apart, yields on soil of medium quality an average of two hundred and fifty pounds of trimmed stems to each one hundred feet in length of the rows, yielding to a properly constructed mill at least sixty-six per cent., (one hundred and sixty-five pounds;) of juice of specific gravity, 1,057, of which ten per cent. (or sixteen and one half pounds) of sugar is by this process easily extracted, or at the rate of over a ton of sugar to the acre of ground. In comparison with this, the same kind of corn, planted in rows the same distance apart, but in hills averaging three feet apart and three stems to the hill, so that the grain may be fully developed in the "roasting-ear" state, the yield of sugar will be only about one half of that in the former case, or about one thousand pounds per acre.

7. The hot summer climate of this part of North America is unequaled for the growth of these plants, as the exhibits at the late international exhibition at Philadelphia fully manifested, and the improved agricultural implements and methods now in use in maize culture will simplify and cheapen immeasurably its production.

8. If a combined sugar and grain crop is desired, the largest stemmed varieties of sweet corn should be grown. The grain may be cured by drying or canning, when it is in the proper condition; but the ears of field corn may be removed before they harden, and fed to stock, either fresh or dried. There is scarcely any difference in the saccharine strength of the juice of "sweet" and field corn. Sorghum, however, yields more sugar than most varieties of sweet corn, on account of its much larger stems.

9. Great advantage is afforded in the manufacture of the new sugars from the circumstance that the period of cutting and working up the crop into dense syrup occurs at a period when the season for out-door work is the most favorable, and when the days are long. No loss is likely to result from inclemency of the weather. Furthermore, the process of manufacture, when carried on by this system, may safely be arrested at a point where it may be completed during the winter when labor is cheap.

10. A large crop of blades and tops for fodder, equal to hay; the ripened seed of the cane, which, when crushed, is equal to oats; and the offal of the sugar-factory for manure, are supplementary to the sugar crop, and very valuable.

11. By judicious treatment of the soil, returning to it regularly all that

has been removed from it except the saccharine product, a sugar crop is the least exhaustive of all crops that can be grown, and improvement of the land is easy and certain. New lands are specially adapted to it.

12. The force of the various natural advantages possessed by these plants in the United States will be found to be greatly argumented by the circumstance that the departures from the old processes of manufacture now necessary to be adopted are all in the direction of greater simplicity, cheapness, and ease of management in accomplishing the result, the reverse of what the more complex nature of these juices would seem to indicate. It will be found, for example, that the cost of the manufacture of corn or sorghum sugar in this country can easily be reduced to less than one half the cost of the beet sugar manufactured in Europe, the carbonatation process and the use of animal charcoal being entirely dispensed with, and the use of the vacuum pan being made unnecessary, and not even desirable except in the case of the largest central factories.

In concluding this brief summary of the main facts of this subject, I cannot but express the surprise which I have felt during the whole course of these researches that, during the century which has elapsed since our birth as a nation, no adequate conception has been reached of the true value of one of the commonest products of our soil—our native Indian corn. The value of the process itself for the practical manufacture of sugar, independent of my own work, has been fully determined by the series of test experiments made with it at the Department of Agriculture last summer, under the direction of the Commissioner, by Professor Collier and by intelligent farmers in the western country, who were furnished by me with the chemicals and necessary information. In no case has there been a single failure. The experiments already made with the process at Washington alone "fully demonstrate," in the language of the Commissioner, "that there exists in these two plants a large amount of sugar which may readily be obtained, and that the aggregate amount possible from this source would be practically unlimited," and in the emphatic statement with which Professor Collier completes his special report that "the experiments have at least established the fact that there is no trouble in making sugar from corn and sorghum," and that the "sugars obtained were in a most satisfactory condition in every respect, comparing most favorably with the best raw sugar of the market, as will be seen at once by reference to their very high polarization—maize sugar, 90°; sorghum sugar, 94°; pear millet sugar, 92°."

"If the results already reached," concluded Mr. Stewart, "are accepted in their full significance, there can be no question that we are on the eve of a revolution in sugar manufacture, and of the rise of a new and permanent industry in this country."

Upon the conclusions of the reading of the paper, S. B. Heiges, of York, Pennsylvania, express great gratification in the able manner in which Mr. Stewart had discussed the manufacture of sugar from corn or sorghum.

One very important point, however, Mr. Heiges, said had not been noticed. From many experiments that he had performed he was fully satisfied that the extraction of potassa, soda, magnesia, etc.; the most valuable of the mineral salts begin only at the formation and perfection of seed. If the corn be removed before maturity this loss is not sustained, and these valuably elements are retained in the soil for furture crops.

By his own request, the essay of Mr. Reeder on the Agricultural History of Bucks County was not read, but it was decided that the time allotted to it on the programme should be added to that allotted to the discussion of the subject of "Tickets, and Prices of Admission to County Fairs"

L. S. Hardin, of New York, then read an essay on "Pennsylvania Dairying, as Seen by an Outsider," in which, after paying a glowing tribute to Pennsylvania butter, which he attributes largely to cleanliness, a feature which, in the manufacture of butter, he claims is even greater than godliness, he stated that a spirit of competition was soon aroused which is now rapidly carrying the quality of our dairy products forward to the highest state of excellence. It is in contrast with the factory produce that we must now measure the quality of Philadelphia butter. While there is no reason to believe that Philadelphia butter has deteriorated in quality, it has, at least, much of its prominence on account of the great excellence of many rival brands. Dairy prints, owing to the infinite variety of its grades of quality, will always stand at a great disadvantage with the organized methods followed in making factory butter. It is thus that the western creameries are playing such havoc with the premiums at dairy shows, robbing dairy fruits of all their former glory. In this light the State of Pennsylvania can take to its consolation the fact that as the name of Philadelphia recedes from our view the name of Meadville arises with a more resplendant glory. By united action, the dairymen of Western Pennsylvania are putting themselves in order to make a strong and successful fight with their dangerous rivals of the West for possession of the dairy markets of the world. "While your State brand of butter and cheese has no great prominence at present in the market, you have a most encouraging prospect ahead. You have a State as broad as an Eastern Empire. The soil represents all the varied wealth that agriculture can demand. Your climate is a happy medium that responds kindly to all the demands of the dairy."

At the close of his essay, Mr. Hardin stated his views as to deep and shallow settling of cream, and, in response to a flood of inquiries from the audience, also gave his plan of churning, salting, and working butter, and gave a practical account of the several plans now in practice in this State and New York. The numerous inquiries made by the audience, and the prompt and practical replies of Mr. Hardin, were the best evidences of the just appreciation of the value of his address. The essay and address were

discussed in full by Messrs. Keller, Beebe, Taylor, Wood, Foresman, Parker, and Levick.

Horace J. Smith, on behalf of Mr. Levick, presented the following:

"WHEREAS, The board of trustees of the University of Pennsylvania have passed a resolution for the establishment of a veterinary department as soon as suitable endowment can be raised;

"*And whereas*, The Pennsylvania Society for the Prevention of Cruelty to Animals (incorporated by this State) has been daily confronted with the need of more educated veterinary practitioners, and has, by its President, Coleman Sellers, Esq., issued a circular to the citizens of the State upon this subject, and has (with the approval of the trustees of the University) volunteered their services in obtaining from our citizens the collection of money endowing this department;

"*And whereas*, The immense interest at stake in the health and life of our domestic animals, demands the thorough instruction in veterinary science of men having suitable preliminary education;

"*And whereas*, The fact that the trustees of the University of Pennsylvania are willing to assume the care of such a trust, is a guarantee that it will be administered in the manner best calculated to attain the desired results, and secure the veterinary school against the possibility of degenerating into a second rate affair; therefore,

"*Resolved*, That the State Board of Agriculture recommends to individuals and corporations owning or interested in horses, cattle, or other live stock, to subscribe liberally and immediately to "the board of trustees of the University of Pennsylvania for the endowment of a veterinary department," or through the medium of the Pennsylvania Society for the Prevention of Cruelty to Animals, through Cadwallader Biddle, Esq., No. 208 South Fourth street, Philadelphia."

After a full and free discussion by Messrs. Beebe, Foresman, Hazard, McCourt, Keller, Dr. Edge, Shriner, Herr, and Calder, the resolution was, on motion of Mr. Beebe, referred to a committee, to be named by the Chair, with instructions to report at next meeting of the Board in October. Amended by Mr. Smith, that the report be made at the afternoon session. Mr. Smith's amendment lost, and the original resolution agreed to. The Chair announced Messrs. Foresman, McFarland, and Barnes as the committee to take charge of the resolution.

Mr. Roland, of York, then read an essay upon "Agricultural Societies, Grounds, Buildings, and Fairs," in which he denounced the practice of gambling, drinking, and fighting which prevails at most agricultural fairs. Referring to the race-course, Mr. Roland did not object to the offering of a premium for the horse that could show the best blood, style, and action, but for that purpose it is not required that there must be a mile track or even a half mile track; one third, or even one fourth of a mile will answer every purpose. Horses specially kept and trained for speed, old, broken, run-down nags, brought from abroad, and which are only miserable

apologies for that noble animal, the horse, should be ruled out and off the grounds. There should be no trials in speed permitted, except for the fast-walking and gaited horse, under the saddle, and the trotting horse in harness.

After a reference to the subjects of admissions, premiums, and awarding committees, Mr. Roland, in concluding, suggested a concert of action between some citizens in every county and the Permanent Exhibition Company, through which means a working organization could be founded, laboring for State development in collecting and depositing in the exhibition buildings samples of the agricultural, horticultural, mineral, and industrial resources of the State, accompanied with maps, showing locality, whence obtained, and facilities for reaching these places.

As was intended, Dr. Roland's essay opened the discussion of the general question for debate, viz: "Tickets of admission to County Fairs, and their price," which, after discussion by Messrs. Reeder, Zerr, Moore, Wood, Herr, and Keller, was postponed until after a recess for dinner.

Adjourned to meet at half past two, P. M.

At an adjourned session, held Friday, June 6, 1879,

Board called to order at half past two, P. M., by Vice President Morris, in the chair.

On motion of the Secretary, Samuel C. Brown, Secretary of the Bureau of Statistics of Labor and Industry of New Jersey, read an essay upon the culture of the new fiber plant—"American Jute"—*Abutilon Avacenae.*

In his essay, Mr. Brown made the following statements:

"In the last two years I have given much attention to the subject of fibrous plants, not only as an essential prerequisite to the extension of manufactures, but with the view to enlarge and diversify our State productive industries, and thereby furnish new occupation in the pursuits of agriculture and manufactures.

"All know the importance that is attached to the cotton industry of this country, and this will best illustrate the value of another fibrous plant, jute, which, if successfully introduced as an American product, will be second only in value to cotton.

"Jute is now chiefly produced in India, and in that conntry to the extent of one billion pounds annually, and about twenty million pounds are imported every year into the United States. If we can make jute a domestic product, its uses can be vastly multiplied, and the East India Government is already apprehensive that our country will not only produce this fiber for its own consumption, but become exporters of it. It is believed this can be done with the India seed, at least in the more southerly States. But we feel assured that there is a jute-producing plant, familiar to all of us, growing spontaneously in sections of New Jersey,

if not throughout its breadth, and the object of this circular is to acquaint the agriculturists of the State with its existence and possible value.

"I have experimented this summer in my garden with the seed both of the India and American plant. The average height of the latter, as it will be found in most sections, will probably be from two to four feet.

"Its spontaneous growth will, of course, indicate its local adaptability to our soil and climate, hence this plan is adopted to determine this important question.

"We invite the coöperation of the public in an endeavor to develop this new industry, which will give us a new fiber for textile fabrics, and also a valuable material for paper pulp. When the plant is found, it will be readily identified with the cut. I simply ask the finder to gather the seed at the proper time, and put it in an envelope, with a brief note, informing me of its location. The seed is supposed to be matured when the pod begins to get black, and before the cells begin to open, otherwise much seed may be lost.

While I desire to obtain seed from every locality, if any choose to retain a portion to experiment with, I would be glad to have them do so, and report the particulars another year. In this connection, I would advise the use of horse manure as a fertilizer. Sow the seed in rows or broadcast. You will please give me the general height of the plant."

Mr. Brown very much increased the interest in his address by the exhibition of samples, in various stages of progress, of the fiber of this plant; and Mr. Le Franc contributed still further to this interest, by inviting the Board to be present to inspect the practical working of machinery which would separate the fiber from the refuse or valueless portion of the stock. (At the close of the afternoon session, this was practically examined by the members of the Board, and all were of the opinion that if the culture of the new plant was to be a success, this success would in great measure be due to the machinery exhibited by Mr. Le Franc.)

The general subject of tickets of admission to county fairs was then taken up, and further discussed by Messrs. Keller, Barnes, Herr, Holcombe, and Zerr.

On motion of Colonel Young, Dr. Edge was invited to read an essay upon European and American agriculture.

Mr. Reeder, of Bucks, offered the following:

Resolved, That the Secretary is hereby instructed to assign to each member the duty of visiting and reporting upon the fair of at least one of the county societies now represented in this Board, and that in each case the system of issuing tickets shall form a leading item for examination and report. Adopted.

On motion of Mr Beebe, it was

Resolved, That the State Board of Agriculture urge upon Congress the necessity of maintaining existing legislation as a protection to this

country against the importation of cattle affected by pleuro-pneumonia and other contageous diseases.

On motion of Mr. Keller, the Board then proceeded to fix a place for the fall meeting.

Mr. Barnes named Allentown; Mr. Moore, Reading; Mr. Foresman, Bellefonte; Mr. Robinson, Mercer; and Mr. Roland, York.

After discussion, and on motion of Mr. Robinson, seconded by Mr. Foresman, it was resolved that the next meeting be held at Mercer, commencing on the third Wednesday in October.

On motion of Mr. Beebe, the Secretary was instructed to retain the subject assigned to Vice President Wickersham, "The Industrial Education of Europe as it affects Agriculture," for a place in the programme of the October meeting.

Adjourned, to meet as above.

REPORTERS' NOTES FROM BLANKS RETURNABLE MAY 10, 1879.

ADAMS, S. W.—Wheat came up badly last fall, and generally too thin, and spotted badly. Grass "caught" very well, but has been injured some by the hard winter, especially on low ground. Sheep generally are looking badly, owing, probably, to hard winter. Cows look thin, but no disease to an unusual extent.

ALLEGHENY, W.—Wheat looks badly, cause unknown. The winter was favorable, the ground being covered with snow during the severe freezing weather. About an average acreage of spring grains will be put in—perhaps a less acreage of oats, owing to the low price—farmers will sow enough for their own use. Meadows, clover, and timothy look well. Area mown this year will be fully twenty per cent. less than last. No unusual damage from insects nor any disease among stock to an unusual extent. Spring very backward, and farmers consequently behind hand with their work. Farm stock generally looking well, the severe winter causing greater care in feeding.

ARMSTRONG.—No unusual disease among live stock. The condition of the wheat crop is poor. The fly has, to a great extent, shortened the crop. The spring has also been very much against the crop. When top-dressed with manure, it has not been so much injured by the fly. Top-dressed wheat last year gave forty bushels per acre. That not so treated only eight to ten bushels.

BEAVER, S. W.—Weather very dry. Good prospect for all kinds of fruit. Dry weather prevents proper preparation of the ground for spring crops. Crops doing well when weather is taken into consideration.

BEAVER, N. W.—Cold and dry weather during April has injured the wheat, and will very much delay corn planting. Heavy frost May 1 and 2. Some fly in wheat, which will probably greatly increase with warm

and growing weather. Stock has passed through the winter in better condition than for several years. No special disease among stocks. A few cases of puerpueral fever among cows, and distemper among horses. Sheep more healthy than last spring.

BEAVER, S.—Wheat, clover, and timothy promise a good crop. Pasture short for the season, but well set. Weather very dry for time of year. Sheep wintered well and are in good condition. All live stock in good condition, and free from any unusual disease.

BEDFORD, S. W.—Cattle are thin, and some have been lost from an unknown disease. They fell off in flesh, breathed very hard, and were sick for several weeks before death. Sheep generally healthy.

BEDFORD, C.—Live stock has been much improved within the past five years by the introduction of thoroughbreds. Some of as fine herds of Jerseys as any in the State, some few Guernseys, and some Short Horns. The number of Hambletonian and Percheron horses has been increased within ten years. Among pigs, Berkshire are on increase. Poultry has also been improved, but the prevalence of chicken cholera is a great drawback to further improvement. Some cases of hog cholera among pigs, pleuro-pneumonia among cattle, and an epizootic disease of the nature of glanders among horses. A frost, May 2, injured the prospect for almost all kinds of fruit, and reduced the crops at least twenty-five per cent.

BEDFORD, N. E.—Some fly in wheat, and this, combined with other causes, will reduce the crops fully thirty-three per cent. below that of last year. The condition of all kinds of stock good, with no unusual disease.

BEDFORD, S.—Early sown wheat much damaged by fly, and in some cases has been plowed under for oats. The only remedy known is late sowing. Later sown wheat is good, when compared with the early sown. Late rains have improved the crops. No unusual disease among stock in this section; hog cholera prevailing further north. Rye and grass looking well. Clover is making a fine start.

BERKS.—All crops are kept back by dry weather; with rain, some will make about average crops. Grass backward and short, but is well set, and with fair weather will make an average crop. Condition of stock good and no unusual disease.

BERKS, N. E.—Wheat crop in some cases almost destroyed by Hessian fly. Rye, half a crop, unless we have rain soon. Colorado bugs already in the potato patches, ready for work. Importing farm stock still going on. Among cattle the Jersey is preferred. But small improvement in horses, swine, and sheep. A systematic disease, in an aggravated form, has prevailed during the winter; supposed cause, severe cold weather; cure, homeopathic doses of *arsenicum*.

BERKS, C.—Winter grain looks well after a covering of snow during cold weather. The backward spring has somewhat retarded work, but oats and potatoes were put into the ground in good time. Prospects of a good fruit very promising. No disease of an unusual nature among live stock.

BERKS, S. E.—Wheat generally thin, and average about half a crop. Rye looking well, but somewhat injured by fly. No disease among live stock. Prospect for peaches and cherries very good. Apples exhibit but little bloom, and will yield a very short crop.

BLAIR, E.—Judging from present appearances, winter grain will yield but half a crop. Stock in good condition, and free from any epidemic or unusual disease.

BRADFORD, C.—Owing to dry weather last fall, and fears of injury from fly, the wheat was sown late last fall, and, in many cases, failed to make a good stand in lower clay soils. When drilled in, looks well, but much of our soil needs draining. Spring very backward. No pleuro-pneumonia to report. Nor any unusual disease among stock, which is in good condition. Clover winter-killed on clay land.

BRADFORD, W.—Wire worms have injured wheat already. Some loss among spring calves. Symptoms, loss of appetite, scouring, and great weakness. Attacks most common during winter and early spring. Seeding (spring,) very late. Grass has an average start. No rye or tobacco raised for market.

BRADFORD, C.—The season thus far has been cold and backward. Frost nearly every night. Wheat badly winter-killed. Less average of corn than last year. No spring wheat sown in this section. Present indications are that crops will be light. A dull lookout for dairying, with low prices. An epizootic disease, in a mild form, prevails to some extent. Some cattle disease, suppposed to be pleuro-pneumonia; symptoms, fever, running at the nose and eyes, and weakness. Not so prevalent now.

BUCKS, C.—The wheat crop of this section, except in exceptional cases, does not look at all promising. Early sown, and that properly drilled in, looks best, while on poorer farms and with a northern exposure, the farmer will be fortunate if he raises his bread and seed. High winds, slight freezing, and snow squalls in April, had much to do with producing this result. Grass fields thus far look very well. Clover not thrown out by frost, and the promise of an average crop. Horses, mules, and cows, are lower in price than last year. Wages of farm hands about twenty per cent. lower than at any time since 1843. The acreage of wheat and corn is about the same as for the past five years. The area of rye is less, and the same may be said of oats. More corn ground being seeded with wheat each season.

BUCKS, N.—Wheat and grass backward, but looking healthy. No disease of an unusual nature among farm stock.

BUTLER, S.—All kinds of vegetables at least thirty days behind the same date in last year. Rain is badly needed. No unusual disease among live stock.

BUTLER, N. E.—Owing to the ravages of fly, assisted by a dry and cold spring, wheat will, to a great extent, prove a failure. Stock of all kinds healthy.

CAMBRIA, N.—Wheat and grass crops will be light, owing to hard freezing. No unusual disease among stock.

CENTRE.—Owing to dry weather soon after sowing time, the wheat looks poor. No disease among live stock. Season very backward.

CENTRE, E. and C.—Wheat and grass look badly. Owing to severe dry weather last fall, much of the wheat failed to grow. Absence of snow and severe winds during the winter injured the wheat very much. Rain very much needed. No diseases among farm stock.

CHESTER, S. E.—The outlook for the farmer in this section is brighter than last year. Wages and local taxes have been reduced, and more economy exhibited in the expenditure of road and school funds. A better demand exists for farm products, and especially for those of the dairy, which has become the leading interest. Stock has been healthy, with no contagious diseases, and less loss among cows from milk feaver, and but few cases of abortion. Some fear of a light crop of hay and short pasturage. Weather cool and very dry. A considerable acreage of tobacco will be planted; estimated profit per acre, $250; but it has been suggested that the exhaustive nature of the crop may more than balance the extra profit of the crop.

CHESTER, N. W.—Condition of crops good, but two weeks later than usual. Wheat looks well, except when sown late on thin land. Clover but little, by freezing out. Cows are healthy and in good condition. An unusual number of horses lost with lung fever. More than usual loss from abortion.

CLEARFIELD, C.—Weather cold and dry. Wheat, clover, timothy, and pasture are very backward. Winter grain injured by freezing. No disease among stock. No barley raised in this section, and no tobacco.

CLEARFIELD, N. W.—Horses in good condition, and free from disease of any kind. Cattle thin in flesh, owing to scarcity of fodder; and some loss of cows. Some loss among hogs from a disease of the kidneys; symptoms, loss of the use of hind legs, and general weakness. Some have recovered when put on half rations. Supposed cause, high feeding, and close confinement on plank floors. Sheep look well; but got but very little grass during the winter, on account of deep snows. Prospect good for a good crop of winter grain. Season at least two weeks later than last.

CLEARFIELD, C.—Wheat on old ground will make half a crop; on a newer soil, three fourths of an average crop. Did not start well in the fall, and has been much injured by a dry, cold winter. Owing to an increased demand for bark, an unusual amount of ground has been cleared, and hence, more than common was seeded last fall. Timothy and clover seldom "took" better, and have wintered well. All crops three weeks later than last year. Farm hands are plenty, and are working for lower wages. More than the average loss of cattle, but no prevailing disease to report.

COLUMBIA, C.—On March 1 the crops looked well; but dry, freezing weather, and high winds since, have very materially injured them, especially on clay soils. No disease, except distemper, among horses, and that not at all serious.

COLUMBIA, W.—Acreage of wheat decreased a little; but is fully made up by increased care in preparing the ground devoted to this crop. Wheat looks promising. Owing to a failure of wheat two years ago, an increased acreage of rye has been sown. Clover looks well, the winter having been favorable. No unusual disease among stock. Potatoes all in the market, and prices rising.

CRAWFORD, C.—Cold weather has kept the crops back; but this has been more apparent when compared with the past five years than with last year. Owing to scarcity of food, stock is not in as good condition as last year, and early pasture is anxiously looked for by many whose barns are nearly empty.

CRAWFORD, N. W.—The raising of an improved stock of horses, and the production of milk for cheese are our leading items. Our soil is better adapted to the production of stock than to grain raising, though our farmers usually raise enough grain for their own use. No special disease among stock. Wheat came through the winter well, but some freezing weather in April has damaged it slightly.

CRAWFORD, E.—Wheat generally thin and small, with weather cold, windy, and dry, and gives but a dull promise of a crop. Fruit prospects look well now, but the chances are good for frost and snow. Cattle free from disease. Sheep not in as good condition as last year.

CRAWFORD.—No new disease among cattle. Some loss from "black leg" among young cattle. Hay nearly all used up. Condition of wheat generally good. No unusual damage by insects.

CUMBERLAND, S.—The acreage of tobacco will be increased. Wheat crop is backward, and suffering from dry and cold weather. Horses have been affected with inflammation of the eyes in an epidemic form. The disease was quite prevalent for a time.

CUMBERLAND, (MIDDLESEX.)—From present indications, wheat will not make more than eighty per cent. of an average crop, but a full average for the past five years. Prices of all kinds of farm stock lower than for twenty years past.

DAUPHIN, E.—Hay being plenty and the price low, live stock is in good condition. Early sown wheat much injured by fly. Late sown looks much better. Prospects for all kinds of fruit good, but apples show a light bloom.

DELAWARE, W.—Owing to a very cold and backward spring, wheat and grass are not looking as well as at this time last year, although fully up to the average of five years. No cases of pleuro-pneumonia in this district of the county so far as known.

ELK, S. W.—The barns and graneries of this section were never so

near empty as they are this spring. Wheat looks well. Light crops last year.

ELK, E.—The acreage of winter wheat has been steadily on the increase since the financial crisis of 1873, hence, when compared with the average of five years, I very much increase it. Winter wheat about as at this time last year. Very few mules used. The long winter has exhausted the stock of hay, and animals are thin. Owing to a competition with the lumbering interests, farm wages still keep higher than in other portions of the State. For the same reason, the variation between summer and winter months is but slight.

ERIE, N.—The acreage of wheat, corn, and barley varies but slightly through a series of five years, being controlled mainly by a difference in the size of the fields. The rotation is not varied much. Barley is one of the most important crops in the townships bordering on the lake. Early sown wheat much damaged by fly. Owing to a cold and backward spring the grass crop, though well set, is short. Cheese and butter dairying is an important interest, and but few horses are raised. Very few mules kept.

ERIE, N. W.—Wheat has not looked worse for ten years. Causes, small growth last fall and damage from fly in early sown fields. Cattle fattened for market have done unusually well, and have consumed large quantities of hay. The spring has been very backward.

ERIE S.—Spring cold, dry, and backward. Farm stock not looking as well as usual. Hay did not feed as well as common. Oats very scarce and a demand for feed. No prevailing or unusual disease among stock. Owing to lateness of season winter wheat looks poor.

FAYETTE, W.—No new disease among stock of this section. Some calves have been lost with a disease known as murrain, which attacks them suddenly, the animal stops eating, droops its ears, and usually dies in twenty-four hours or less from the first attack. When the skin is taken off the blood appears to be clotted between it and the flesh. Mostly this is confined to the limb first attacked, but in some cases extends over the whole body. Much trouble with chicken cholera. At least thirty per cent. more lime used during the past three years.

FAYETTE, S. E.—Weather has been very unfavorable for spring work. Very wet until middle of April, and then becoming so dry as to plow with great difficulty. Owing to this cause, spring work and spring crops are backward, and the acreage will be somewhat reduced. Hay and fodder nearly exhausted.

FOREST, N.—All stock healthy, and no pleuro-pneumonia. Stock in poor condition, owing to hard winter and scarcity of fodder. Owing to the depression of the oil and lumber interests, an increased acreage of all spring crops will be planted.

FRANKLIN, C.—Stock of all kinds healthy, and no disease to report. Growing crops look well. Wheat small and backward, but well set. Fruit prospect good.

FULTON, N. W.—Dry weather has very much injured the wheat crop. Owing to injury from late frosts, the fruit crop is not very promising. All kinds of stock looking well, and feed has been used up very close.

GREENE, E.—Wheat, in about one third of the county, has been badly winter-killed, and is now suffering for want of rain. Our farmers are turning their attention now to the corn crop, and are stocking their farms with sheep, and better grades of sheep, and cattle are being introduced.

HUNTINGDON, W.—Wheat crop backward, and suffering for want of rain. Oats put in the ground in fine order.

HUNTINGDON, E.—No disease among the farm stock of the district. Wheat much winter-killed. Grass very well set, but backward, as compared with last year.

INDIANA, W.—No disease prevailing among live stock. Wheat badly damaged by fly, and the cold and dry weather is doing it much harm.

JEFFERSON.—Wheat much damaged by Hessian fly. No disease among stock, except "black leg." Potato beetles bid fair to be very destructive.

JEFFERSON, S.—Business of all kinds slowly reviving. Wheat, owing to a poor start last fall, caused by drought, is not up to an average, but the winter has been favorable. Apples, cherries, and plums promise a good crop. Peaches mostly killed.

JUNIATA.—Owing to the backward spring and a want of rain, all crops are below an average in appearance. A few rains, with good growing weather, may make up the defect. No disease among stock.

JUNIATA, C.—Wheat small, and not looking very well. No appearance of fly yet. An unknown disease has shown itself principally among fat cattle; affects the urinary organs, causing disease of the bladder, with other organs all healthy. No other disease to report.

LACKAWANNA, N.—Season very late. Winter grain suffering for want of rain, and will be much shortened from this cause. Grass short, and needing rain. No unusual disease among farm animals.

LANCASTER, S. E.—The area seeded to wheat last fall was unusually large, but it does not look as well as one year ago; though not large, it is strong and healthy. Larger areas are being planted with corn, and larger amounts of fertilizers applied this spring than ever before. Condition of farm stock above the average.

LANCASTER, N.—Wheat well manured and carefully put in; looks well, but, where a second crop has been seeded, the yield will be lower than last year. Grass is well set, but short, on account of cool weather. Farm stock in good condition, and no unusual disease.

LANCASTER, S.—Where the wheat got a good start last fall, it looks well, and has not been much injured by the winter. A great many fields are, however, looking badly. Some injury from fly. Grass of all kinds very backward, and hay-making will be late, unless we have warm weather and rain. Stock unusually healthy. A few cases of strangles among hogs, the only exception to note.

LANCASTER.—Wheat is backward, and not as well set as last year. An extra amount of lime was used on corn ground this spring. An extra acreage of tobacco will be planted. No unusual disease among live stock.

LANCASTER, N. W.—Wheat is short, and has not "stooled" out as well as last year, but looks healthy. Condition of stock about the same as previous years, with no cases of disease to note.

LAWRENCE, W.—Owing to dry weather soon after seeding, and the ravages of the fly, wheat looks badly, and that sown late is much winter-killed. Live stock in good condition and healthy.

LAWRENCE.—Wheat injured by fly, and a backward spring. No epidemic or unusual disease among stock.

LEBANON, S.—Wheat sown latter part of September looks most promising. Earlier, the ground was too dry. The acreage of tobacco will be very much increased.

LEHIGH, W.—No unusual disease among stock. Hessian fly has again destroyed much of the wheat. Rye looks well.

LUZERNE, C.—Cattle thin, but in good health. Horses and mules in average condition. Show for hay next harvest is very slim. Season very backward. Pasture very late.

LYCOMING.—Stock unusually healthy, and in good condition. Wheat does not promise to come up to an average. Cause, lack of snow, and the prevalence of high winds. The only damage from insects, is to the potato crop by the Colorado beetle.

LYCOMING, E.—But little pasture in this section, no barley raised, and but little tobacco. No spring wheat sown, and but few sheep and lambs raised or fed for market. Dry weather soon after seeding last fall has caused a thin stand of wheat, but with good weather a fair crop may yet be obtained.

MERCER, S. E.—Season late, cold, and wet. Some damage to wheat from fly last fall. Wheat sown late generally, but that sown earliest looks best. A good show for fruit. Stock generally healthy.

MERCER, S. W.—Wheat thin, but no appearance of fly as last year. Cows in good condition, but pasture late and supply of milk short. Sheep in as good condition as last year, with a larger per centage of lambs with a prospect of a good clip of wool.

MERCER, C.—Spring very backward, with late frosts. No disease among stock. The hard and long winter has exhausted the supply of feed, and stock is not in as good condition as at the same time last year.

MERCER, W.—Spring dry, cold, and backward winter, with crops in poor condition. More grain fed and better care taken with stock than formerly, and more cattle and sheep fattened for market. No prevalent disease among stock to note.

MIFFLIN, N. W.—Wheat somewhat injured by Hessian fly. Two or three herds of cattle affected with what is supposed to be pleuro-pneumonia. A number of deaths have occurred, and no remedy found effective.

MONROE, W.—Pasture lands and grass fields well set, but short; but the clover is more thickly set than for many years past. Wheat and rye both well set but short. No disease among stock.

MONTGOMERY, S.—No tobacco, barley, or spring wheat raised in this section. No cattle disease of any kind to report. A large acreage will be planted with potatoes.

MONTGOMERY, N. W.—No cases of pleuro-pneumonia in upper Montgomery county, and farm stock is in unusually good condition. Pastures and mowing fields well set, but short for the season of year, which is fully three weeks later than last.

MONTGOMERY, C.—Cattle in good health and condition, and less than the usual loss from abortion among cows. Ours is essentially a dairy region, and is affected by prevailing low prices. Wheat looks well generally. An increased acreage will be planted with corn, and a decreased one with oats. The acreage of potatoes is annually increased, in spite of the unusual price of seed.

MONTOUR, S. E.—Much wheat has been "frozen out," more injured by the drought in April and early May, and the fly has injured some of the early sown fields.

NORTHAMPTON, S.—Owing partially to dry weather after seeding time last fall, the wheat looks poorly, and that sown late looks worst. Clover and timothy fields look well. No disease among farm stock.

NORTHUMBERLAND, C.—Some distemper among horses, but no other disease among stock to report. Season cool and backward. Wheat and all fruit crops are behind former years.

PERRY, E.—The season is backward and the crops behind those of former years. Wheat and rye are well set, with a fair prospect for a good harvest. With continued favorable weather, fruit will prove a good crop.

PHILADELPHIA, (Frankford.)—The season has been favorable, and there is a promise of an abundant harvest in this section. A larger per centage of land will be planted with potatoes. Much loss among chickens from cholera.

PIKE, N.—No disease among cattle or other farm stock. Prospect good for wheat and rye, the roots of which were well protected by snow during the winter. Only damage from insects is by Colorado beetles on potato tops.

POTTER, N. E.—Season late and grass too short for pasture, and many are nearly out of hay. Stock healthy, but thin in flesh.

SCHUYLKILL, N. W.—Farm stock all free from disease. Rye crop looks well, and wheat seldom looked better. Weather cold and season backward.

SCHUYLKILL.—More ground under cultivation than for many years past. Grain and grass suffering for want of rain. Spring very late, and crops of all kinds backward.

SNYDER, S. E.—Wheat seldom looked better, and rye looks well. Some complaint, in some parts of the county, of hog cholera, but no other sick

ness among stock. Owing to its low price, but little oats was sown. Condition of stock, fair, but cows are not up in condition to former years.

SOMERSET, C.—Wheat much damaged last fall by "grub-worms," and also by hard freezing during the winter. No uncommon disease among stock.

SULLIVAN, N. C.—Cold spring and dry weather have been unfavorable for grass of all kinds and pasture very short.

SULLIVAN, W.—Distemper in an epidemic form prevailing among horses. Swine scarce, and many dying suddenly. More rye seeded this year than usual, on account of a ready market for the straw.

SUSQUEHANNA, C.—The past winter has been long and severe, and the unusually large crops of hay and grain raised last season are nearly all consumed. Stock is generally in poorer condition than one year ago. Farm work late, owing to cold and backward spring. Wheat and rye winter-killed but little, except where the storm blew off. Grass backward, but grain looks well.

TIOGA, E.—Winter wheat has stood the spring frosts well. Grass looks well, but short. No disease among cattle where properly cared for.

UNION, E. C.—Wheat is very much "spotted," that on good land seeming to be most injured. No disease among stock. Peach crop promises well. Pear trees full of bloom. Apples not far enough advanced to report. A larger acreage of potatoes planted this year.

UNION, M. C.—Wheat and grass look well. No sign of fly yet. No disease among live stock.

VENANGO, S. W.—No prevailing disease among stock. Prospects for wheat very poor, as it was badly damaged by "grub-worm." Pasture very poor, owing to backward spring.

VENANGO, M.—Deep snows formed a grand covering for the fall grain, meadows, and pastures. No heavy frosts, and we look for good crops generally. Excepting a few cases of inflammation of the lungs among horses, we have no disease of farm stock to report.

WARREN, C.—Stock is in a healthy condition, with no unusual disease. Wheat, grass, and other crops somewhat injured by frost. Potato bugs plenty.

WARREN, N.—The spring has been cold and backward. Labor is in excess of the demand. Prices of produce low, and business dull. No tobacco raised for sale in the district.

WASHINGTON, E.—Owing to the severity of the winter, the wheat crop is looking badly. Spring from two to three weeks later than usual. No cases of pleuro-pneumonia, nor any unusual disease among farm stock.

WESTMORELAND, C.—Season very backward. Severe frosts in May killed most of the cherries, and about one half of the pears and peaches. Apples not sufficiently forward to be much injured. Owing to late seeding and poor cultivation, many fields of wheat got a poor start last fall. Some injury from Hessian fly, for which the weather has been favorable. No disease of any unusual character, and stock in good order.

WESTMORELAND, C.—Very little rye grown; and no mules or oxen kept. Very little tobacco grown, but the acreage is on the increase. No sales of milk, except in a small way to supply town custom. Spring wet and backward. Farm stock of all kinds healthy.

WYOMING, S. E.—Winter wheat, having been well covered with snow all winter, looks well. Stock in good condition and healthy throughout the district.

WYOMING, S. W.—The severe winter has used up all the hay, and consequently stock is not in its best condition. Dry weather in the fall injured the wheat and rye, which are not showing well.

CONDITION OF CROPS.

(The reader will bear in mind the fact that the official reports upon which our data is based were closed out June 1, and that sundry causes may have, in some measure, operated to change the result and condition in some localities.)

Wheat.

This crop will show a considerable falling off from that of last year, but will probably make about an average crop. In the counties of Cameron, Elk, Forest, Schuylkill, and Tioga our reports indicate that the crop will be fully equal to that of last harvest. In the counties of Allegheny, Bedford, Butler, Centre, Clarion, Montour, and Venango the falling off, as compared with last year, has been considerable, and in Centre, Butler, and Clarion it will seem, from the reports up to June 1, that the crop of 1879 would not be more than half of that of 1878; but, since many of these reports were made out, local rains and favorable weather have so improved the condition of the crop that we may assume that no county will show a yield of less than three fourths of the crop of 1878. In Centre and Lancaster, long continued dry weather, previous to and after seeding, prevented the proper preparation of the ground until late, and, even after seeding, prevented the proper germination of the grain. From this cause alone the crop of these two counties will be reduced.

The counties of Armstrong, Beaver, and Forest report an increase of *acreage* of ten per cent.; Butler reports an increase of one fifth, or twenty per cent.; and Carbon an increase of thirty per cent. The counties of Blair, Clearfield, Cumberland, Fayette, Lackawanna, Lancaster, Pike, Schuylkill, Snyder, Tioga, Venango, and Wyoming report an increase in acreage varying from one to seven per cent. In the older counties this increase is due to the fact that in many cases oats has proved an unprofitable crop, and, as a substitute, farmers have "carried off" the corn and seeded with wheat. Every acre of corn ground thus seeded adds to the increased acreage of the crop. In the lumber, oil, and mining counties the stagnation of these interests has stimulated agriculture, and in some cases the increase of acreage has been very marked.

The production of spring wheat seems to have been confined to the counties of Bradford, Cameron, Clearfield, Forest, McKean, Pike, Potter, Sullivan, Susquehanna, Tioga, Venango, Warren, Wayne, Westmoreland, and Wyoming, and each year's reports seem to indicate a decrease in acreage. Cameron reports an increase of ten per cent. in acreage; but the total acreage of the county is so small that this increase does not materially affect the average of the whole State, and is much more than compensated by a decrease of fifteen per cent. in Bradford, or twenty per cent. in Warren.

In the counties of Berks, Chester, and Lancaster, the yield of the wheat crop has been diminished by a local storm of wind, hail, and rain, which, in some instances, decreased the yield fully fifty per cent.; but this decrease, while it may exercise a marked effect on the actual crop of these counties, will have very little effect upon the aggregate crop of the State.

As has been the case with our reports *every* year since the Board was established, all reports of damage from fly have been accompanied by the stereotyped phrase, "worst in early sown fields; only remedy, later sowing."

Up to May 15, our returns warranted us in estimating the probable yield of wheat at 13,250,000 bushels; but the favorable weather since then will warrant an increase of 250,000 bushels, thus raising the estimate to 13,000,000 bushels.

Rye.

Since a demand has sprung up for rye straw in the manufacture of paper, there has been a gradual increase in the acreage of this crop, but our returns will not warrant us in estimating the acreage of this crop for 1879 above that of 1878. It is true that some counties (notably Pike, Butler, and Lehigh) show an increased acreage, but in such cases the former crop has been small, and any such increase is fully counterbalanced by a falling off in other parts of the State. Armstrong, Berks, Blair, Butler, Cameron, Centre, Clarion, Forest, Greene, Indiana, Lancaster, Lehigh, Monroe, Montour, Northampton, Northumberland, Perry, Pike, and Potter show an increase in acreage of from one to ten per cent., while Adams, Beaver, Cambria, Jefferson, Snyder, and Schuylkill show a marked decrease.

In the condition of the crop May 15, reports from Elk are the only ones that indicate a yield greater than last year. Allegheny, Bucks, Cameron, Delaware, Jefferson, Lehigh, Monroe, Pike, Schuylkill, Wayne, and York indicate about the same yield per acre as in 1878, while Adams, Bedford, Blair, Cambria, Centre, Columbia, Fulton, Greene, Huntingdon, Lawrence, Luzerne, Lycoming, Montour, and Northumberland indicate a decrease of from five to twenty-five per cent. in yield.

Our reports, as received up to the date given, lead us to estimate the crop of 1879 at 3,550,000 bushels, with the possibilities in favor of a larger amount.

Corn.

As much of this crop was not planted at the time the reports were closed, it is, of course, impossible for us to give any estimate as to the condition or yield of the crop. All our reports indicate that the cold and backward spring has not only delayed planting, but has also done much to shorten the size of the plants. In the acreage of the crop Armstrong, Bedford, Butler, Cameron, Carbon, Chester, Clarion, Clearfield, Cumberland, Dauphin, Delaware, Fayette, Franklin, Greene, Indiana, Lackawanna, Lancaster, McKean, Mifflin, Monroe, Montgomery, Perry, Pike, Potter, Snyder, Schuylkill, Somerset, Sullivan, Union, Washington, Westmoreland, and York indicate a gain of from one to eight per cent., while Cambria, Lawrence, and Wayne show a decrease. Twenty-two counties do not show any change in their acreage of this crop. Taking the average of the past ten years, our average annual yield of this crop has not been far from 35,250,000 bushels.

We have continued complaints of the ravages of wire and web worms, especially in Bucks, Montgomery, Chester, and Lancaster. In many cases the latter, in connection with a cold and backward spring, (which seems to favor their production,) have very much injured the prospect of a crop.

Oats.

At the time of closing our report, the condition of this crop was not such as would warrant any estimate as to its probable yield. Hence it was omitted in the May blanks. The same causes which have been before noticed as operating against the corn crop, while they have not to the same extent retarded the oat crop, have nevertheless caused it to be shorter than at a corresponding date last year. Warm weather and rains have, however, in some measure, repaired this damage but our returns lead us to expect a much smaller crop than last year. Heretofore our farmers have shown a strong disposition to substitute some other crop for the position occupied by oats in the rotation, but our returns for this year indicate a considerable increase in the acreage. This increase is most marked in Butler, Carbon, Clearfield, Forest, Lawrence, Mifflin, Montour, Pike, Venango, and Westmoreland, where it amounts to from five to ten per cent. This increase naturally follows the increase in the acreage of last year's corn crop, and it will be noticed is mainly confined to counties which have not heretofore given much attention to agriculture. Adams, Berks, Bradford, Bucks, Cumberland, Dauphin, Erie, and Montgomery, show a decreased acreage, varying from one to six per cent. It will be noticed that in the older counties, the disposition to get this crop out of the rotation still exists. The average annual yield of this crop has, for the past ten years, not varied much from 31,250,000.

Hay.

In our May blanks, we have divided the hay crop into three classes, viz: wheat stubbles, (mainly clover,) mowing fields of last year mostly clover, and other fields mostly timothy. Although not made an item

in the blanks, all of our reports seem to indicate that a smaller acreage than usual has been retained for hay. This is, no doubt, in great measure due to the large amount of old hay now in the State. Our reports from Beaver, Bedford, Butler, Chester, Columbia, Clinton, Cumberland, Elk, Fayette, Franklin, Monroe, Perry, Philadelphia, Somerset, Union, Wyoming and York indicate a very favorable condition of the young grass in the wheat stubbles, and other things being equal, and increase in the cut of hay. In most of these counties, this condition is also reported in the older clover stubbles. In Bedford, Bucks, Butler, Chester, Columbia, Indiana, Lycoming, Northampton, Pike, and Wyoming, the many fields composed mainly of timothy are reported in good condition, as compared with last year. In other counties the decrease in apparent condition varies from one to ten per cent. The condition of the season thus far would indicate that while the actual yield in tons will not be as great as in 1878, yet its feeding qualities may be expected to be greater. This, with the old hay now in store, will give a good feeding power for the coming winter.

CONDITION OF LIVE STOCK.

Horses and Mules.

When compared with 1878, the counties of Armstrong, Berks, Centre, Chester, Cumberland, Delaware, Indiana, Juniata, Lancaster, Pike, Somerset, Union, and Westmoreland report working stock in better condition. In most cases, this is attributed to the large hay crop of 1878. Clinton, Crawford, Forest, Greene, Monroe, Montour, Perry, Potter, Susquehanna, and Wayne report a falling off in the condition of this kind of stock. When compared with the average condition of the previous five years, the increase is very apparent, and but very few counties report a falling of. Except a tendency to throat and nasal diseases, horses and mules have been free from disease, and the services of the veterinary surgeon of the Board have not been called into requisition for this class of stock.

Cows.

Twenty-three counties report their cows in better condition than at a corresponding date in 1878. Twelve report the condition the same, and thirty-two show falling off of from one to ten per cent. As compared with the average of five years, twenty-five counties show a marked improvement, fifteen exhibit but little if any difference, and twenty-seven admit a decrease in this respect.

The loss from milk fever, (so far as reported,) has not been so large as usual, and, except a few cases of pleuro-pneumonia and simple pneumonia, no disease has been reported. Abortion seems to be slowly and gradually on the increase, and in our dairy counties, in the eastern part of the State, has become a serious evil, and one which very much reduces the profits of

the dairy. Of the many theories as to its cause, none seem to account for more than a simple majority of cases. The Board has authorized the appointment of a State commission to "investigate into the cause, and if possible, suggest remedies." In this work the veterinary surgeon of the Board will be assisted by two of the best veterinary surgeons in the State, and by three practical dairymen; by giving this commission the information asked for, our dairymen may materially assist the Board in its attempts to obtain relief.

Sheep.

Seventeen counties report their sheep in better condition than at the same time last year. Eighteen do not report any change, leaving thirty-two with this class of stock in worse condition. When compared with the average of five years, the reports from thirty-one counties indicate a marked improvement; fifteen do not show any variation, and twenty-one show a falling off.

Swine.

Fifteen counties report swine in better condition than at a corresponding period last year. Twenty-two counties report no change, and in thirty this class of stock is not in as good order as last year. Some cases of "hog cholera" have been reported, but not to the same extent as last year. In many cases our correspondents note an improvement in the quality and value of this class of stock, by the introduction of boars of improved breed.

Fat Cattle.

Fourteen counties report the feeding and fat cattle in better order than in 1878. Twenty-two report them as last year, while thirty-one return them as not in as good condition. A few attribute this to the fact that "the hay in 1878, did not feed well."

Prices of Farm Products and Stock.

A comparison of the table of prices of farm products and stock, as compiled from the May returns of 1879, with a similar table of the preceding year shows an increase in price of eight cents per bushel in wheat, three cents in rye, twenty-eight in potatoes, an increase of fifty-eight cents per ton in hay, of five dollars per head in horses, and a decrease of three cents per bushel in oats, five cents per bushel in corn, two cents per pound in butter, and fifteen dollars per head in cows.

Farm Wages.

As compared with last year, the decrease in farm wages has been as follows: For work by the month for the whole year, with board, fifty-six cents per month; for work by the month during the summer months, with board, sixty-five cents per month; for constant work by the day, with board, seven cents per day; for constant work by the day, *without* board, seven cents per day; for work by the month for the whole year, *without* board, ninety-seven cents; for work during the summer months, *without* board, $2 82 cents. The decrease in the estimated cost of boarding a farm hand per day has been five cents.

REPORT OF THE SUPERINTENDENT OF THE EASTERN EXPERIMENTAL FARM.

WESTGROVE, PA., *June 1, 1879.*

THOMAS J. EDGE, *Secretary of Board of Agriculture:*

The results of experiments having been generally reported by my predecessor, Mr. John I. Carter, I will refer briefly to the line of action marked out for the present year. As is well known, the farm is not liberally supported, and we are compelled to confine our experiments to very narrow limits. For this reason, more than any other, the farm meets with so much opposition from the very class it is intended to benefit. Experiments in farming cannot be carried on without incurring more expense than would be the case in ordinary field culture, and it must be recollected that many times the experiment, from the nature of the case, entails an entire loss of the crop and ground. If the farm did nothing else than demonstrate the value of varieties of wheat, corn, oats, &c., it would be of incalculable benefit to the farming community. As an example, it may be mentioned that the farm was very largely instrumental in introducing the Fultz wheat in this part of the State, and has repeatedly pointed out the perfect worthlessness to this section, at least, of various seed grains loudly extolled by interested parties.

It has been regretted that there was no outlet heretofore, other than an occasional newspaper article, for the store of information here accumulating. But the present management of the Board of Agriculture has given us an opportunity to lay before the farmers of the State that which we hope is really valuable. We never need be at a loss for material for experiment. Notwithstanding the earnest efforts made of late years to probe the many mysteries connected with agriculture, how little do we know. We earnestly wish to contribute our mite to the general fund of knowledge, not forgetting the practical bearing of our experiments, nor their intimate relation to what is supposed to be the "root of all evil." But without the coöperation of those directly concerned in the management of this farm, and of the farming community in general, of ourselves we can do but little. The present season we propose to continue the tests of various varieties of wheat, oats, potatoes, and to extend our inquiries into new fields of labor.

Wheat.

The following varieties are under cultivation: Gold Dust, Eureka, Washington White, Clawson, Fultz, Glick, White Chaff Mediterranean, Champion Amber, Heige's Prolific, Gold Medal, Swamp, Nevada Rye, Fall Mexican, Victor, Australian, and Purple Straw. We will mention here that the Purple Straw has been entirely winter killed; Nevada Rye, Victor, and Australian nearly so, while the Fall Mexican, Gold Medal, Swamp, and Gold Dust are in poor condition. A number of experiments with fertilizers are under way, and a plot has been set apart for cultivation this spring.

Oats.

We re-plant this year the following promising kinds: Canadian, Waterloo, White Dutch, Lyell & Andre's King, and also Chinese Hulless, from Agricultural Department, Washington. We have put in plots, with and without phosphate, and sown some and drilled others.

Potatoes.

We have twenty varieties in the ground. The most promising we consider to be the Victor, Peerless, Late Rose, Beauty of Hebron, and Extra Early Vermont. We have cut some large, some small, some are planted without phosphate, in rows, others with; some close together, and some far apart. Of some we planted the blossom end, and others the stem end only.

Corn.

Our experiments with corn will be directed, principally, to the question of the advisability of raising the crop for sugar. Much attention is being given to this subject, and, if possible, we wish to prove that sugar can be made profitably from corn or demonstrate the reverse. Those further interested in the subject may be referred to the agricultural report for 1877, where the process of F. L. Stewart is given in full. We wish to compare the sugar-producing qualities of corn with that of sorghum, and, if possible, with beets also.

Grass.

We propose to institute experiments as to time of cutting clover, timothy, etc., and to note the value of the different cuttings when fed to cows and other animals. This to be of value, must extend through several years, and the weather particularly noted during the progress of the experiments.

Truck.

We wish to give considerable attention to this subject. Independent of raising vegetables for market, it is an important matter for farmers to have a good garden, and we will try to explain, to the best of our ability, how truck can be raised with comparatively little labor and expense. We are constantly receiving from the Agricultural Department, Washington, new garden and other seeds. These will be carefully tested, and the results made public.

Fruit receives a large share of attention, and no small portion of the income of the farm is derived from that source. We try to observe closely questions connected with this branch of farming, and any thing of interest will be reported in due season.

I much regret the want of time to lay before you some valuable results in regard to the persistence of manures, application of lime for a series of years, etc., but must leave the subject for a more convenient season. In the summer we can only collect facts, digest and compile them in the winter; but we will endeavor, at the pleasure of the Board, to present such as seem of most interest, recollecting that in making experiments we must be governed by the means at our disposal.

W. R. SHELMIRE, *Sup't.*

FARM WAGES AND BOARD.—1879.

FROM MAY RETURNS OF OFFICIAL REPORTERS.

COUNTIES.	By the month, (whole year,) with board.	By the month, (summer months,) with board.	By the day, (with board,) regular work.	By the day, (without board,) regular work.	By the month, (whole year,) without board.	By the month, (summer months,) without board.	Estimated cost of board per day.
Adams,	$8 00	$11 00	$0 65	$1 00	$16 00	$20 00	$0 30
Allegheny,	12 50	16 50	90	1 10	20 00	25 00	40
Armstrong,	11 00	13 00	62	89	18 50	20 50	28
Beaver,	13 00	15 50	68	90	18 75	22 50	30
Bedford,	8 75	11 50	50	75	11 75	18 75	30
Berks,	9 00	13 00	50	70	16 50	19 50	23
Blair,	10 50	12 00	50	80	18 00	20 00	33
Bradford,	12 50	14 00	55	75	18 00	20 00	27
Bucks,	13 00	15 50	62	1 00	21 00	23 00	40
Butler,	10 50	13 00	50	1 00	13 00	22 00	40
Cambria,	10 00	12 00	50	75	20 00	25 00	38
Cameron,	12 00	15 00	65	1 00	20 00	25 00	45
Carbon,	9 00	11 00	50	90	. . . . .	. . . . .	40
Centre,	10 00	11 75	50	75	15 00	18 00	30
Chester,	11 75	15 00	58	78	20 00	24 00	38
Clarion,	10 00	14 00	75	1 00	18 00	20 00	32
Clearfield,	10 50	15 00	72	95	. . . . .	. . . . .	34
Clinton,	12 25	16 50	65	90	18 00	23 25	37
Columbia,	10 00	12 00	60	90	16 75	20 00	33
Crawford,	11 00	12 75	62	87	14 00	16 00	37
Cumberland,	9 25	11 00	50	77	16 00	18 50	35
Dauphin,	9 00	11 50	55	1 00	21 00	26 00	23
Delaware,	12 00	15 50	68	95	20 00	23 00	30
Elk,	14 00	16 00	62	1 05	23 00	26 00	42
Erie,	11 50	13 75	75	1 00	20 00	23 50	32
Fayette,	11 00	13 50	62	87	18 00	21 50	25
Forest,	12 50	15 50	65	1 05	21 50	24 50	32
Franklin,	10 00	12 50	62	87	13 50	16 50	25
Fulton,	9 50	12 00	55	82	15 50	18 00	28
Greene,	10 00	13 50	62	87	14 00	18 00	33
Huntingdon,	9 75	11 50	60	87	16 50	18 00	27
Indiana,	9 75	11 50	62	87	14 75	17 50	34
Jefferson,	11 00	15 50	65	1 00	15 50	21 50	28
Juniata,	11 00	14 50	50	87	. . . . .	. . . . .	33
Lackawanna,	11 00	13 75	75	1 00	20 00	25 00	32
Lancaster,	10 50	13 00	62	85	15 00	18 50	22
Lawrence,	12 20	14 50	68	85	16 50	20 00	31
Lebanon,	9 00	11 25	60	85	16 00	20 50	28
Lehigh,	8 00	11 00	50	75	. . . . .	. . . . .	28
Luzerne,	10 00	13 50	53	80	18 50	21 50	32
Lycoming,	11 50	13 00	65	87	16 50	19 00	28
McKean,	11 75	14 75	75	1 00	20 00	24 50	32
Mercer,	10 75	13 00	55	80	18 00	22 00	27
Mifflin,	9 50	11 25	60	89	13 00	18 00	27
Monroe,	11 50	14 00	60	87	. . . . .	. . . . .	26
Montgomery,	11 00	15 00	87	1 00	19 25	22 00	40
Montour,	9 00	12 50	50	73	15 00	19 00	24
Northampton,	9 25	11 50	60	90	18 50	22 00	25
Northumberland,	9 50	11 00	50	90	17 25	20 00	38
Perry,	9 50	11 00	50	80	16 00	18 50	28
Philadelphia,	12 00	15 00	75	1 05	20 00	24 00	40
Pike,	10 00	13 00	57	89	18 50	22 00	40
Potter,	13 50	16 75	87	1 05	. . . . .	20 00	37
Schuylkill,	9 00	13 50	50	90	18 00	22 00	40
Snyder,	9 00	12 00	50	70	14 00	17 50	27
Somerset,	11 00	14 00	70	87	16 00	. . . . .	37
Sullivan,	11 00	14 00	75	1 04	16 00	20 00	35
Susquehanna,	11 00	13 50	64	90	16 25	20 75	24
Tioga,	11 50	14 25	75	1 00	. . . . .	. . . . .	38
Union,	10 00	11 00	50	75	. . . . .	. . . . .	26
Venango,	10 00	13 75	75	90	16 50	18 75	30
Warren,	11 00	15 00	73	1 00	16 00	20 00	32
Washington,	10 25	13 50	60	90	17 00	21 00	31
Wayne,	11 00	12 25	75	1 00	15 00	18 50	34
Westmoreland,	10 25	12 25	50	70	16 50	17 75	32
Wyoming,	9 50	11 75	60	85	17 00	19 50	33
York,	10 25	11 75	73	95	17 75	19 75	30
Average,	$10 58	$13 40	$0 63	$0 88	$17 44	$21 25	$0 32

FARM WAGES—1878.

FROM JULY RETURNS OF OFFICIAL REPORTERS.

COUNTIES.	By the month, (whole year,) with board.	By the month, (summer months,) with board	By the day, with board, regular work.	By the day, (without board,) regular work.	By the month, (whole year,) without board.	By the month, (summer months,) without board.	Estimated cost of board per day.
Adams,	$10 00	$12 50	$0 60	$0 95	$19 50	$22 50	$0 37
Allegheny,	11 50	15 00	75	95	21 50	30 00	36
Armstrong,	12 50	15 00	75	95	20 00	25 00	32
Beaver,	10 75	14 50	75	1 00	17 50	22 00	35
Bedford,	10 00	13 25	60	85	13 00	15 50	36
Berks,	10 00	12 50	60	75	16 50	20 00	32
Blair,	10 00	13 00	55	87	19 00	22 00	35
Bradford,	11 75	14 50	65	90	17 50	22 50	30
Bucks,	12 50	15 00	75	1 15	20 00	23 50	38
Butler,	8 00	10 00	1 00	1 40	18 00	22 00	35
Cambria,	8 50	12 00	50	75	10 75	16 00	28
Cameron,	14 00	18 00	75	1 10	24 00	28 00	30
Carbon,	10 00	12 00	60	90	22 00	26 50	32
Centre,	10 50	12 50	62	85	16 50	20 00	36
Chester,	14 00	16 50	65	95	22 00	25 00	38
Clarion,	.....	.....	62	87	.....	.....	35
Clearfield,	12 00	15 00	75	95	18 00	20 50	36
Clinton,	12 75	15 00	62	87	18 00	20 75	32
Columbia,	10 00	13 50	60	87	18 00	20 00	37
Crawford,	12 75	15 50	75	1 10	25 00	30 00	38
Cumberland,	13 00	15 00	62	90	20 00	25 00	38
Dauphin,	12 00	15 00	60	75	18 00	20 00	35
Delaware,	12 75	15 00	75	1 00	18 50	21 50	40
Elk,	14 00	16 75	75	1 10	22 00	25 25	35
Erie,	13 50	15 75	75	1 05	19 50	23 50	35
Fayette,	10 00	12 50	75	1 00	.....	.....	32
Forest,	15 00	18 50	75	1 25	29 50	32 50	35
Franklin,	11 00	14 25	70	1 00	18 25	21 75	30
Fulton,	10 50	12 75	60	95	18 00	21 50	32
Greene,	11 75	14 25	75	1 00	17 50	20 00	32
Huntingdon,	11 50	14 25	62	85	14 50	18 00	34
Indiana,	11 00	12 75	62	95	17 25	20 00	36
Jefferson,	11 75	13 75	62	87	15 50	20 75	34
Juniata,	11 50	13 75	60	75	15 25	23 00	30
Lancaster,	12 25	15 50	70	95	15 60	20 00	37
Lawrence,	10 00	15 00	75	1 10	21 00	24 50	40
Lebanon,	8 00	11 50	65	88	13 50	16 75	30
Lehigh,	9 75	12 00	70	95	17 50	23 75	35
Luzerne,	12 50	15 00	65	1 00	21 50	25 50	37
Lycoming,	14 50	18 25	70	1 00	20 00	24 50	34
McKean,	15 00	19 00	1 00	1 30	24 00	27 50	40
Mercer,	9 75	16 00	75	1 10	13 50	20 00	38
Mifflin,	10 00	13 25	75	1 00	.....	.....	34
Monroe,	10 00	12 25	55	87	.....	.....	37
Montgomery,	12 50	15 50	75	1 12	20 00	24 00	39
Montour,	10 00	12 50	62	95	18 00	22 00	34
Northampton,	8 50	10 75	75	1 00	.....	.....	32
Northumberland,	10 00	12 50	62	87	15 00	18 75	31
Perry,	10 00	12 25	55	80	14 00	16 50	30
Philadelphia,	15 00	18 50	87	1 12	24 00	27 50	48
Pike,	11 00	13 00	60	1 00	18 00	21 50	33
Potter,	12 75	16 00	75	1 00	24 25	27 00	33
Schuylkill,	12 00	16 00	68	1 00	22 00	25 25	35
Snyder,	12 00	16 00	50	75	20 00	23 75	34
Somerset,	10 50	13 25	65	95	.....	.....	30
Sullivan,	10 00	13 00	60	87	19 00	23 50	35
Susquehanna,	10 50	13 75	75	1 00	20 00	23 75	35
Tioga,	12 50	15 25	85	1 15	20 00	25 50	35
Union,	12 25	14 75	62	85	18 50	21 25	34
Venango,	12 00	15 00	75	1 00	18 00	22 50	36
Warren,	10 00	14 00	75	1 00	13 75	20 00	36
Washington,	12 50	16 25	70	95	20 00	23 50	35
Wayne,	12 00	15 25	75	1 00	15 00	18 50	32
Westmoreland,	11 50	14 25	65	90	21 00	24 50	35
Wyoming,	12 00	14 75	75	1 00	22 50	26 00	33
York,	12 00	15 75	75	1 05	20 00	24 00	37
Average,	$11 24	$14 05	$0 70	$0 95	$18 41	$24 07	$0 36

PRICES OF FARM PRODUCT AND STOCK IN NEAREST MARKET—1879.

FROM MAY RETURNS OF OFFICIAL REPORTERS.

COUNTIES.	Wheat—per bushel.	Rye—per bushel.	Oats—per bushel.	Corn—per bushel.	Clover Seed—per bus.	Timothy Seed—per bus.	Potatoes—per bushel.	Hay—per ton.	Butter—per pound.	Ewes, fat—per head.	Lambs—per head.	Horses—average.	Mules—average,	Cows—average.
Adams,	$1 00	$0 45	$0 24	$0 45	$3 50	$1 25	$0 90	$6 00	$0 14	$4 00	$2 50	$77	$100	$27
Allegheny,	95	62	25	45	4 00	1 40	90	11 00	24	4 50	3 00	89	. . .	38
Armstrong,	1 00	52	25	42	3 90	1 30	68	8 50	17	4 50	2 50	85	75	28
Beaver,	98	56	28	42	4 00	1 30	90	7 00	18	3 25	2 50	80	90	25
Bedford,	95	62	31	62	3 75	2 00	85	8 00	17	3 00	2 50	75	90	25
Berks,	98	47	29	50	4 50	2 75	95	8 50	18	3 00	2 50	98	104	30
Blair,	1 00	52	32	50	4 00	2 25	1 00	11 00	20	3 25	2 50	80	95	25
Bradford,	1 00	51	33	49	4 50	2 00	90	7 00	14	4 50	3 25	95	100	28
Bucks,	1 05	56	29	48	4 75	2 25	1 10	8 00	28	4 50	4 00	100	110	33
Butler,	1 00	52	26	49	4 25	2 10	75	8 10	15	5 00	2 75	75	75	21
Cambria,	1 00	60	35	60	5 00	2 25	1 00	11 00	18	3 50	3 00	75	75	30
Cameron,	1 10	60	35	56	5 00	2 00	1 10	13 00	18	.	. . .	95	95	32
Carbon,	1 08	60	34	58	5 10	2 10	1 20	14 00	17	. . .	. . .	95	98	31
Centre,	1 00	50	25	50	3 75	1 75	80	8 00	15	4 00	2 25	70	72	25
Chester,	1 05	56	28	49	4 00	1 75	1 05	9 00	20	4 50	4 00	80	95	35
Clarion,	1 02	60	28	40	5 00	2 50	1 02	9 00	18	3 50	2 00	75	80	28
Clearfield,	1 00	75	35	46	5 00	2 00	1 00	10 00	20	3 00	2 00	85	90	25
Clinton,	1 00	65	35	55	4 20	2 00	85	8 00	20	4 00	2 25	95	95	30
Columbia,	95	48	28	50	4 10	2 00	60	6 00	17	3 75	2 25	80	80	27
Crawford,	1 00	58	25	43	4 75	1 75	80	7 00	10	4 00	3 00	75	. . .	26
Cumberland,	1 04	40	27	40	3 10	1 45	87	8 00	15	3 25	3 75	95	95	25
Dauphin,	1 00	50	25	43	4 00		85	10 00	21	. . .	. . .	85	83	28
Delaware,	1 10	60	35	42	4 00	2 00	1 15	8 00	30	5 00	4 50	100	115	40
Elk,	1 15	75	40	45	4 50	2 50	1 00	12 00	20	. . .	. . .	75	72	29
Erie,	1 08	55	30	41	3 75	1 75	1 00	7 50	14	. .	.	97	. . .	29
Fayette,	1 02	60	27	43	4 50	1 87	82	8 00	18	4 50	2 75	90	89	33
Forest,	1 04	67	33	55	4 75	2 00	1 00	10 50	18	. . .	. . .	75	80	25
Franklin,	1 02	58	29	48	3 25	1 50	1 00	7 50	16	3 50	2 25	83	89	25
Fulton,	1 02	70	35	52	4 25	2 00	77	9 00	14	3 50	2 00	65	75	24
Greene,	89	55	20	47	3 00	1 75	87	6 00	12	4 00	3 00	75	80	23
Huntingdon,	1 00	55	30	50	4 00	1 50	90	8 00	18	6 00	3 00	95	85	30
Indiana,	1 00	48	24	45	4 00	1 50	90	7 50	16	4 25	2 00	85	75	30
Jefferson,	1 05	70	33	48	4 50	2 00	85	9 00	14	3 00	2 50	95	95	24
Juniata,	1 00	60	25	43	3 75	2 00	75	8 00	14	3 75	2 75	78	80	25
Lackawanna,	1 16	48	32	47	4 50	2 00	1 00	12 00	17	4 00	3 00	100	105	33
Lancaster,	1 06	56	32	45	3 75	2 00	1 05	8 00	25	5 50	3 75	105	110	35
Lawrence,	1 00	62	25	40	3 75	1 63	75	6 50	14	4 00	2 50	85	90	28
Lebanon,	1 06	48	28	49	3 62	1 25	1 05	7 50	12	4 75	3 00	95	100	25
Lehigh,	1 10	50	26	45	3 25	1 75	80	9 00	18	. . .	. . .	100	100	33
Luzerne,	1 10	50	28	46	4 00	1 87	90	10 00	17	5 00	3 00	85	95	25
Lycoming,	1 03	60	27	48	4 00	3 00	90	9 00	19	3 50	2 25	95	98	25
McKean,	1 14	63	35	56	4 75	2 00	1 00	8 50	15	3 25	2 50	75	75	30
Mercer,	1 02	68	24	45	3 75	1 75	75	7 50	14	4 00	3 00	105	110	28
Mifflin,	1 00	60	25	60	3 75	1 40	1 00	9 25	15	4 00	2 75	75	70	26
Monroe,	1 00	52	30	50	4 75	2 00	60	9 00	13	4 00	3 25	100	75	25
Montgomery,	1 06	54	30	50	5 00	2 00	1 10	8 00	28	4 00	3 00	100	100	34
Montour,	1 00	43	25	43	4 00	1 75	70	8 00	17	4 00	3 00	75	75	31
Northampton,	1 12	49	30	45	4 25	2 10	90	9 00	17	4 00	3 00	105	105	35
Northumberland,	1 04	50	30	50	4 00	2 00	60	10 00	20	5 00	3 00	100	105	30
Perry,	1 02	50	26	43	3 50	1 40	85	8 50	12	4 00	2 75	75	87	24
Philadelphia,	1 10	58	32	48	4 50	1 75	1 20	12 00	30	4 00	4 00	120	115	38
Pike,	1 16	70	40	50	4 25	2 00	73	8 00	24	4 00	3 00	95	100	33
Potter,	1 05	65	38	50	4 75	2 00	75	9 00	14	. . .	. . .	80	85	27
Schuylkill,	1 06	53	33	51	4 00	1 75	80	11 50	20	5 00	3 00	65	60	33
Snyder,	1 05	43	25	44	3 50	1 75	65	7 50	15	4 00	2 25	75	80	22
Somerset,	90	60	40	60	5 00	1 50	60	7 50	14	3 50	. .	74	76	25
Sullivan,	1 00	54	31	55	4 50	1 75	75	9 00	17	4 00	2 50	90	85	27
Susquehanna,	1 05	60	31	48	5 00	1 60	77	7 50	15	5 00	3 00	75	70	26
Tioga,	1 00	75	35	56	4 24	2 00	75	6 00	15	4 75	2 25	80	75	27
Union,	1 00	60	26	40	4 00	2 50	87	9 00	14	3 75	. . .	85	. . .	31
Venango,	1 00	75	28	50	4 00	2 00	70	9 50	15	4 00	2 00	75	70	27
Warren,	1 07	70	36	51	5 00	1 75	1 00	6 25	14	3 50	2 00	75	80	26
Washington,	1 00	55	27	45	4 25	1 50	75	7 00	16	4 00	2 75	75	80	35
Wayne,	1 00	70	36	60	5 50	2 00	75	7 50	13	4 25	2 50	85	90	30
Westmoreland,	1 00	53	30	45	4 10	1 75	73	7 00	17	5 00	3 00	95	. . .	27
Wyoming,	1 05	45	39	45	4 50	1 65	70	10 00	16	4 00	2 75	80	75	26
York,	1 05	45	27	42	3 50	1 50	1 00	10 25	15	5 00	3 50	75	80	26
Average,	$1 04	$0 57	$0 29	$0 47	$4 44	$1 89	$0 86	$8 38	$0 18	$4 33	$2 95	$85	$77	$29

PRICES OF FARM PRODUCTS AND STOCK—1878.

FROM RETURNS OF OFFICIAL REPORTERS OF THE BOARD.

COUNTIES.	Wheat—per bushel.	Rye—per bushel.	Oats—per bushel.	Corn—per bushel.	Potatoes—per bushel.	Hay—per ton.	Butter—per pound	Horses—average value.	Mules—average value.	Cows—average value.
Adams,	$0 90	$0 55	$0 25	$0 50	$0 50	$6 00	$0 13	$62 00	$70 00	$25 00
Allegheny,	92	52	23	50	76	9 00	25	120 00	100 00	42 00
Armstrong,	95	50	20	40	50	7 00	16	90 00	85 00	28 00
Beaver,	92	50	25	45	70	6 00	20	75 00	65 00	35 00
Bedford,	85	70	35	60	65	5 50	20	70 00	72 00	25 00
Berks,	1 00	60	30	50	62	8 50	18	80 00	75 00	38 00
Blair,	85	50	25	55	75	8 00	17	80 00	85 00	28 00
Bradford,	1 00	50	24	45	55	5 00	18	75 00	80 00	25 00
Bucks,	1 00	55	26	50	65	9 00	26	100 00	100 00	43 00
Butler,	90	50	22	51	70	8 00	15	80 00	85 00	25 00
Cambria,	80	40	20	55	65	6 00	18	62 00	70 00	25 00
Cameron,	1 00	50	30	50	60	10 00	20	50 00	75 00	22 00
Carbon,	1 05	60	31	57	55	12 00	25	85 00	100 00	40 00
Centre,	87	50	28	56	75	8 00	18	75 00	85 00	28 00
Chester,	95	55	31	50	50	10 00	28	100 00	105 00	50 00
Clarion,	1 12	68	22	50	50	8 00	20	70 00	80 00	31 00
Clearfield,	1 05	75	32	50	75	8 00	22	85 00	87 00	24 00
Clinton,	90	55	25	60	70	9 50	20	80 00	83 00	28 00
Columbia,	95	48	26	52	68	9 00	17	95 00	100 00	26 00
Crawford,	95	50	23	48	60	6 50	13	80 00	80 00	26 00
Cumberland,	95	60	23	46	53	6 00	13	75 00	90 00	28 00
Dauphin,	98	55	28	60	65	8 00	18	75 00	80 00	30 00
Delaware,	98	55	32	54	70	11 00	31	100 00	105 00	51 00
Elk,	93	65	30	62	45	9 00	20	65 00	70 00	30 00
Erie,	95	50	30	46	51	6 00	18	75 00	80 00	23 00
Fayette,	92	50	22	51	43	6 00	15	75 00	75 00	30 00
Forest,	1 10	70	32	60	70	11 00	18	110 00	105 00	28 00
Franklin,	90	55	25	50	70	7 00	13	80 00	82 00	30 00
Fulton,	95	60	28	60	55	8 00	13	65 00	70 00	22 00
Greene,	93	55	20	50	43	7 00	17	60 00	70 00	35 00
Huntingdon,	85	43	25	50	60	6 00	19	85 00	90 00	28 00
Indiana,	91	41	21	46	35	6 00	17	75 00	78 00	26 00
Jefferson.										
Juniata,	90	60	25	50	52	7 00	16	75 00	75 00	25 00
Lackawanna,	1 05	58	28	52	70	10 00	19	85 00	90 00	30 00
Lancaster,	94	56	30	53	70	10 00	20	80 00	85 00	42 00
Lawrence,	1 00	60	26	48	65	6 00	18	100 00	95 00	35 00
Lebanon,	1 00	50	29	55	55	8 50	13	70 00	72 00	28 00
Lehigh,	1 00	58	31	51	65	9 00	18	85 00	80 00	32 00
Luzerne,	1 00	50	30	50	60	10 00	20	100 00	100 00	40 00
Lycoming,	98	60	29	50	68	9 00	19	90 00	85 00	32 00
McKean,	1 05	70	36	66	62	6 00	18	87 00	87 00	26 00
Mercer,	98	70	30	45	60	6 00	15	75 00	60 00	32 00
Mifflin,	89	58	25	51	60	7 00	15	80 00	85 00	26 00
Monroe,	1 05	54	31	52	46	9 00	17	85 00	88 00	26 00
Montgomery,	1 00	56	35	50	80	8 00	26	75 00	70 00	43 00
Montour,	95	40	25	50	50	8 00	20	75 00	80 00	36 00
Northampton,	1 00	50	29	51	63	10 00	21	95 00	90 00	41 00
Northumberland,	1 00	60	31	48	52	10 00	18	89 00	90 00	34 00
Perry,	93	50	23	55	46	7 50	13	95 00	92 00	24 00
Philadelphia,	1 05	53	25	55	55	10 00	25	125 00	125 00	50 00
Pike,	. . .	60	35	60	50	10 00	20	95 00	95 00	25 00
Potter,	1 00	70	28	68	50	7 00	16	80 00	80 00	20 00
Schuylkill,	1 00	65	32	56	80	12 00	20	86 00	87 00	35 00
Snyder,	92	47	22	50	40	9 00	16	74 00	65 00	25 00
Somerset,	1 00	55	26	55	44	6 00	15	85 00	85 00	25 00
Sullivan,	1 00	75	34	53	61	10 00	16	90 00	93 00	28 00
Susquehanna,	1 02	65	28	60	45	6 00	18	87 00	80 00	22 00
Tioga,	1 00	72	23	50	55	5 50	22	78 00	80 00	25 00
Union,	92	50	22	64	65	8 00	16	78 00	76 00	30 00
Venango,	95	65	22	55	55	7 00	20	75 00	78 00	25 00
Warren,	1 10	75	30	55	62	6 50	19	78 00	80 00	25 00
Washington,	85	55	28	48	50	6 00	18	90 00	92 00	28 00
Wayne,	1 10	70	35	68	65	8 00	16	85 00	89 00	28 00
Westmoreland,	89	49	21	50	55	6 00	20	95 00	100 00	33 00
Wyoming,	95	55	22	46	56	6 00	16	76 00	80 00	30 00
York,	90	46	25	55	70	7 50	16	85 00	85 00	30 00
Average,	$0 96	$0 60	$0 23	$0 52	$0 53	$7 80	$0 20	$80 00	$77 00	$44 40

CONDITION OF FARM STOCK—1879.

FROM MAY RETURNS OF OFFICIAL REPORTERS.

COUNTIES.	CONDITION OF FARM STOCK COMPARED WITH LAST YEAR.							CONDITION OF FARM STOCK COMPARED WITH AVERAGE OF FIVE YEARS.						
	Horses.	Mules.	Oxen.	Cows.	Sheep.	Swine.	Fat cattle.	Horses.	Mules.	Oxen.	Cows.	Sheep.	Swine.	Fat cattle.
Adams,	100	100	85	95	75	100	95	100	100	95	97	95	100	100
Allegheny,	100	. .	. . .	100	105	100	100	105	. . .	. . .	110	100	115	100
Armstrong,	103	103	102	89	93	100	85	102	102	104	100	102	100	100
Beaver,	100	100	100	102	104	100	105	100	100	101	105	102	101	95
Bedford,	95	100	105	102	104	101	102	100	100	104	110	103	102	100
Berks,	105	105	101	102	100	105	108	102	102	103	103	100	101	104
Blair,	95	100	93	94	100	101	98	100	100	98	97	95	100	100
Bradford,	100	100	105	100	98	95	100	100	100	103	105	105	95	100
Bucks,	100	100	100	93	100	100	95	100	100	100	93	100	95	98
Butler,	100	. . .	. . .	100	100	110	. . .	100	. . .	. . .	105	105	105	
Cambria,	90	105	90	100	100	85	105	100	100	90	100	85	85	95
Cameron,	100	100	98	102	104	100	95	101	98	102	98	100	100	100
Carbon,	100	91	94	105	94	101	100	100	95	89	98	100	101	95
Centre,	102	102	. . .	90	100	95	98	103	103	102	100	101	101	98
Chester,	104	102	101	100	100	100	108	102	102	104	100	100	101	100
Clarion,	105	100	105	110	101	104	100	105	105	105	104	102	100	102
Clearfield,	100	100	100	95	95	98	100	100	100	100	98	95	98	95
Clinton,	95	95	90	100	100	100	95	95	95	95	100	100	98	95
Columbia,	100	100	101	102	95	98	100	104	100	98	100	101	102	98
Crawford,	99	. . .	100	95	95	100	100	98	. . .	100	100	100	95	95
Cumberland,	102	102	100	100	95	102	100	100	100	100	102	101	104	100
Dauphin,	100	92	100	98	100	100	95	108	108	102	100	104	105	100
Delaware,	105	100	95	102	89	90	95	100	100	85	105	89	87	95
Elk,	100	100	100	94	94	100	100	100	100	100	95	95	100	100
Erie,	100	. . .	105	95	95	100	105	102	. . .	100	93	100	100	102
Fayette,	100	100	98	99	100	95	98	98	100	100	99	104	102	100
Forest,	92	95	85	80	87	89	95	98	98	90	89	96	90	95
Franklin,	97	97	100	100	99	95	100	98	98	100	100	93	95	100
Fulton,	102	100	95	105	92	90	92	95	98	97	100	92	98	100
Greene,	92	92	90	83	100	89	92	94	94	100	100	101	98	94
Huntingdon,	105	100	100	105	95	100	100	102	100	100	105	100	102	100
Indiana,	105	105	100	107	102	92	98	90	90	100	100	102	98	89
Jefferson,	95	100	90	95	90	80	85	95	100	95	95	80	80	95
Juniata,	102	102	100	102	101	91	92	100	100	95	90	92	95	98
Lackawanna,	97	100	102	98	102	100	102	101	103	101	101	103	99	102
Lancaster,	105	105	107	105	105	95	105	109	110	107	105	102	100	107
Lawrence,	100	100	100	107	107	100	95	95	100	100	105	105	100	98
Lebanon,	100	100	101	100	98	102	100	102	102	105	105	101	101	102
Lehigh,	100	101	100	102	98	95	90	100	100	98	95	95	90	104
Luzerne,	95	100	93	90	98	90	100	99	100	95	100	95	97	100
Lycoming,	100	100	92	90	100	95	105	100	100	88	94	100	89	100
McKean,	100	101	90	90	98	99	100	100	100	95	93	100	100	98
Mercer,	100	100	90	101	100	100	95	102	100	100	102	98	98	98
Mifflin,	90	100	100	105	101	102	101	100	101	102	100	104	100	100
Monroe,	90	90	95	85	100	102	103	100	100	98	105	105	101	105
Montgomery,	100	100	100	101	100	105	102	107	105	100	102	102	105	105
Montour,	89	89	90	94	92	93	98	100	100	100	102	103	101	100
Northampton,	98	99	95	90	100	105	100	105	104	100	90	100	100	100
Northumberland,	100	100	100	92	98	101	102	100	100	100	98	95	101	98
Perry,	95	90	95	101	100	100	98	90	90	89	102	98	100	98
Philadelphia,	105	. . .	. . .	101	105	100	. . .	100	100	101	104	105	100	
Pike,	102	104	101	100	92	100	95	104	104	104	102	102	105	104
Potter,	95	100	100	98	105	100	98	105	100	100	105	110	100	100
Schuylkill,	100	100	100	100	102	101	100	95	95	95	100	100	102	100
Snyder,	100	100	90	90	90	85	100	100	100	100	98	98	95	97
Somerset,	105	105	105	105	102	95	100	105	100	102	105	103	98	102
Sullivan,	100	102	105	100	107	90	100	100	100	100	101	110	85	98
Susquehanna,	98	98	93	89	95	95	98	100	100	95	94	98	98	97
Tioga,	100	90	100	90	100	98	99	101	98	100	97	104	95	95
Union,	103	. . .	. . .	97	105	95	98	100	. . .	. . .	98	105	97	96
Venango,	100	100	100	102	110	100	100	105	100	110	110	100	100	105
Warren,	100	100	100	94	95	100	94	100	100	104	97	98	100	94
Washington,	100	95	95	100	105	95	100	105	100	100	105	105	95	100
Wayne,	94	100	100	105	100	94	90	98	104	90	100	105	95	90
Westmoreland,	105	106	100	100	105	100	100	110	115	100	98	107	100	98
Wyoming,	100	100	100	93	93	100	99	100	100	100	97	100	102	100
York,	100	101	102	107	100	107	110	110	102	100	110	107	105	110

ACREAGE OF CROPS—1879.

FROM MAY RETURNS OF OFFICIAL REPORTERS.

COUNTIES.	ACREAGE COMPARED WITH LAST YEAR.					ACREAGE COMPARED WITH THE AVERAGE OF LAST FIVE YEARS.				
	Wheat.	Wheat, (Spring.)	Corn.	Oats.	Rye.	Wheat.	Wheat, (Spring.)	Corn.	Oats.	Rye.
Adams,	100	. .	100	90	85	100	. . .	100	87	80
Allegheny,	95	. .	100	100	100	110	. . .	100	90	87
Armstrong,	110	. . .	105	105	102	105	. . .	102	104	102
Beaver,	110	. . .	100	100	87	120	. . .	110	105	100
Bedford,	100	. . .	101	101	100	104	. .	100	100	100
Berks,	95	. . .	100	95	105	102	. .	100	100	100
Blair,	102	. . .	100	100	102	100	. . .	101	101	100
Bradford,	95	85	100	95	95	105	104	103	104	102
Bucks,	100	. . .	100	95	90	100	. . .	100	90	90
Butler,	120	. . .	102	110	110	120	. . .	103	100	115
Cambria,	100	. . .	90	100	85	110	. . .	105	104	104
Cameron,	90	110	101	100	101	110	110	103	105	110
Carbon,	130	. . .	102	108	106	120	. . .	105	105	110
Centre,	90	. . .	100	100	100	100	. . .	98	100	95
Chester,	100	. . .	101	101	100	100	. . .	100	100	100
Clarion,	100	. . .	101	102	101	105	. . .	104	104	103
Clearfield,	105	105	105	105	100	110	110	110	106	104
Clinton,	98	. . .	98	100	95	110	. . .	105	104	102
Columbia,	100	. . .	100	100	100	102	. . .	104	104	100
Crawford,	100	. . .	97	98	100	102	. . .	102	102	101
Cumberland,	102	. . .	101	89	95	102	. .	100	100	100
Dauphin,	95	. . .	105	95	100	95	. . .	105	100	100
Delaware,	102	. . .	105	75	100	100	. . .	105	75	105
Elk,	100	. . .	100	102	100	125	. . .	100	105	100
Erie,	95	. .	100	93	95	102	. . .	103	90	98
Fayette,	105	. . .	101	100	100	115	. .	100	90	85
Forest,	110	100	100	107	105	110	100	115	120	115
Franklin,	100	. . .	102	98	95	105	. . .	105	95	92
Fulton,	90	. . .	100	100	90	100	. . .	95	100	90
Greene,	87	. . .	105	100	102	100	. . .	102	101	104
Huntingdon,	98	. . .	98	98	97	100	. . .	100	95	100
Indiana,	102	. . .	105	100	107	100	. . .	102	100	110
Jefferson,	95	. .	100	100	75	125	. . .	100	100	85
Juniata,	93	. .	100	100	95	98	. .	100	100	100
Lackawanna,	102	. . .	103	102	90	105	. . .	105	105	102
Lancaster,	103	. . .	105	100	105	105	. . .	107	92	100
Lawrence,	100	. .	90	105	95	105	. . .	95	105	100
Lebanon,	100	. . .	100	100	90	100	. . .	100	100	100
Lehigh,	90	. . .	100	100	110	105	. . .	100	100	92
Luzerne,	90	. . .	95	98	100	93	. . .	96	100	98
Lycoming,	100	. . .	100	100	99	100	. .	100	100	92
McKean,	89	80	110	90	95	100	85	105	100	98
Mercer,	100	. . .	100	100	100	102	. . .	101	102	100
Mifflin,	100	. . .	108	105	100	95	. . .	107	107	102
Monroe,	87	. .	107	104	105	95	. .	105	105	105
Montgomery,	100	. . .	104	95	95	100	. . .	102	100	101
Montour,	98	. . .	101	104	102	107	. . .	105	102	104
Northampton,	89	. . .	100	95	101	90	. . .	100	92	101
Northumberland,	100	. . .	100	100	101	102	. . .	101	104	102
Perry,	110	. . .	102	110	104	105	. . .	102	115	102
Philadelphia,	105	. . .	100	95	85	100	. . .	100	100	95
Pike,	105	100	110	110	110	105	. . .	105	115	115
Potter,	100	100	102	101	104	104	104	104	102	104
Schuylkill,	105	. . .	103	100	85	110	. . .	105	100	100
Snyder,	107	. . .	103	90	70	102	. . .	102	90	78
Somerset,	98	. .	107	102	100	110	. . .	115	100	95
Sullivan,	95	75	105	110	95	95	95	105	110	100
Susquehanna,	97	98	100	103	95	102	96	100	100	90
Tioga,	105	105	100	100	92	105	100	100	98	92
Union,	102	. . .	105	105	95	100	100	100	100	100
Venango,	105	90	100	107	100	95	90	105	107	102
Warren,	90	80	95	95	100	100	90	107	100	92
Washington,	100	. .	104	100	90	104	. . .	103	103	90
Wayne,	90	85	90	95	100	95	96	89	100	100
Westmoreland,	100	90	105	105	90	95	90	102	101	90
Wyoming,	102	100	98	90	94	100	. . .	100	97	97
York,	89	. . .	101	101	98	100	. . .	101	102	98

CONDITION OF CROPS—1879.

FROM MAY RETURNS OF OFFICIAL REPORTERS.

COUNTIES.	COMPARED WITH LAST YEAR.						COMPARED WITH AVERAGE OF FIVE YEARS.					
	Wheat.	Rye.	Wheat stubble, (grass.)	Mowing fields, (clover.)	Mowing fields, (timothy.)	Pasture, (natural.)	Wheat.	Rye.	Wheat stubble, (grass.)	Mowing fields, (clover.)	Mowing fields, (timothy.)	Pasture, (natural.)
Adams,	70	75	95	90	90	90	80	90	100	100	100	100
Allegheny,	75	100	92	95	95	85	95	100	98	110	105	100
Armstrong,	85	97	93	98	98	97	100	95	98	97	95	87
Beaver,	95	95	105	105	95	102	85	95	98	98	96	95
Bedford,	65	85	115	105	104	100	85	95	100	102	90	98
Berks,	88	98	95	98	87	90	100	100	90	90	89	85
Blair,	75	65	105	90	95	95	95	95	95	102	104	95
Bradford,	88	90	104	95	95	100	98	100	108	104	100	102
Bucks,	90	100	102	100	102	100	100	100	102	100	102	100
Butler,	60	98	110	101	101	100	85	100	110	105	100	100
Cambria,	70	80	95	100	95	98	89	95	100	98	95	100
Cameron,	100	100	95	95	90	95	105	100	102	100	105	100
Carbon,	90	95	100	100	100	. . .	110	110	108	101	102	100
Centre,	50	80	95	95	95	85	75	90	89	87	90	95
Chester,	90	100	105	105	105	100	100	100	110	106	106	100
Clarion,	65	95	90	87	100	90	75	98	89	89	89	90
Clearfield,	90	92	95	90	90	89	100	100	95	98	95	98
Clinton,	87	90	104	100	100	95	100	100	100	109	107	105
Columbia,	100	80	105	105	105	95	102	95	104	102	100	100
Crawford,	90	85	97	95	95	100	93	87	98	100	100	95
Cumberland,	80	75	108	100	100	90	100	95	105	102	108	100
Dauphin,	87	75	89	97	95	100	97	92	100	102	105	100
Delaware,	95	100	100	100	100	101	115	110	112	105	105	105
Elk,	102	102	110	100	100	98	108	107	105	100	100	100
Erie,	80	90	100	95	89	95	85	95	107	102	100	100
Fayette,	83	85	105	100	95	100	107	105	107	102	104	102
Forest,	98	99	100	101	95	87	100	100	95	93	95	92
Franklin,	95	89	102	100	100	95	95	99	100	100	100	98
Fulton,	75	75	85	100	90	90	100	100	95	93	95	100
Greene,	80	70	75	65	75	80	90	90	93	94	94	92
Huntingdon,	75	75	95	105	95	95	95	98	102	107	100	100
Indiana,	70	95	100	105	105	100	75	100	100	104	107	102
Jefferson,	80	100	100	100	100	100	85	100	98	97	99	90
Juniata,	78	85	87	87	89	70	83	82	95	93	91	79
Lackawanna,	89	95	100	100	95	92	97	99	105	103	100	100
Lancaster,	90	81	100	95	90	95	105	105	107	110	107	102
Lawrence,	70	80	90	89	85	75	87	87	95	95	100	95
Lebanon,	93	95	100	100	98	100	107	105	102	100	100	105
Lehigh,	87	100	100	100	100	98	90	102	101	100	102	95
Luzerne,	85	80	100	100	100	98	90	95	100	100	100	100
Lycoming,	87	80	100	105	105	100	87	87	100	100	98	94
McKean,	90	90	85	90	92	93	89	89	90	100	95	95
Mercer,	87	75	92	90	90	95	100	95	93	98	97	100
Mifflin,	75	87	100	100	100	98	95	100	105	110	100	100
Monroe,	94	100	108	105	95	95	100	100	104	107	95	95
Montgomery,	80	87	87	93	94	98	90	90	95	95	90	100
Montour,	60	68	95	94	93	90	65	70	100	100	100	102
Northampton,	80	80	90	105	110	102	75	95	90	110	107	100
Northumberland,	80	80	100	100	100	100	100	100	107	107	101	100
Perry,	92	95	107	95	98	95	101	100	107	105	101	100
Philadelphia,	95	95	105	100	100	95	105	100	100	100	100	100
Pike,	87	100	90	105	105	100	95	98	104	104	104	100
Potter,	85	85	100	100	100	100	105	105	105	100	100	100
Schuylkill,	105	100	100	95	95	99	105	95	105	105	100	100
Snyder,	90	85	85	90	90	90	100	93	102	105	104	100
Somerset,	85	87	105	100	100	87	105	85	95	105	105	100
Sullivan,	98	104	90	90	89	89	92	102	95	98	90	89
Susquehanna,	95	100	94	93	96	95	100	102	100	100	100	95
Tioga,	100	80	101	102	98	100	104	90	105	105	105	100
Union,	90	89	104	100	100	100	95	95	94	92	90	100
Venango,	70	80	100	95	90	87	81	100	100	100	95	90
Warren,	90	93	98	95	98	97	100	100	100	100	100	100
Washington,	95	90	100	100	100	90	95	90	100	100	100	96
Wayne,	95	100	100	100	96	104	91	100	95	100	100	104
Westmoreland,	89	95	110	100	100	100	95	105	100	100	100	100
Wyoming,	90	90	105	100	107	107	90	90	102	100	101	100
York,	85	100	107	100	100	100	100	100	101	107	102	98